H. 8.

1 GAL 180

HEALTH

A WEEKLY JOURNAL OF

DOMESTIC AND SANITARY SCIENCE.

BOSTON MEDICAL LIBRARY ASS MAY 8 1889

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, AND COMPETENCE."—*Pope.*

EDITED BY DR. ANDREW WILSON, F.R.S.E. &c.

VOL. V.—No. 128.] FRIDAY, SEPTEMBER 18, 1885. [PRICE TWOPENCE. *Registered at G.P.O. as a Newspaper.*

BRAND & CO.'S INVALID SOUPS, Potted Meats, PRESERVED PROVISIONS, ETC.

BRAND & Co's PRESERVED PROVISIONS SOUPS & SPECIALTIES FOR INVALIDS

ESSENCES of BEEF, MUTTON, VEAL & CHICKEN, BEEF TEA, TURTLE SOUP & JELLY, MEAT LOZENGES &c.

SOLE ADDRESS No. 11 LITTLE STANHOPE ST. MAYFAIR. W.

BRAND & CO.'S OWN SAUCE.

A fine Tonic and Digestive.

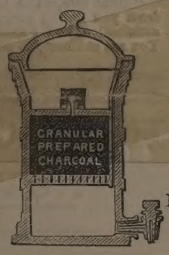
An excellent Relish for "Fish, Flesh, or Fowl."

See *Lancet* for Report on Food Products, Paris Exhibition, 26th September, 1878.

DOULTON & CO.

DOULTON'S MANGANOUS CARBON FILTER (DR. BERNAYS'S PATENT).

ADVANTAGES:—
Manganous Carbon is the very best of all purifying agents.
Each part of the Filter is movable to allow of perfect cleansing.



LAMBETH, S.E.

DOULTON'S Improved Granular Charcoal FILTER.

Fitted with a movable **Manganous Carbon** Block in place of Sponge, giving double action to power of filtering media.

GEORGE MASON'S Specialties for Invalids,

Essence of Beef, Concentrated Beef Tea, Savory Meat Lozenges, &c.

OPINIONS OF THE PRESS.—*Health:* "They may, therefore, be recommended to the notice of the public and medical profession." *Medical Times and Gazette:* "The beef essence, which is the form best suited for medical cases, is especially worthy of recommendation." *The London Medical Record:* "They are superior in flavour to any we have tasted." *The Philanthropist:* "We have paid a visit to the manufactory, and have satisfied ourselves as to the perfect cleanliness and honesty of the process of manufacture." *Journal of Society of Arts:* "Gives us an essence of beef which after its kind leaves nothing to be desired." *Weekly Times:* "The best sample of meat essence shown at the Health Exhibition is that produced by Mr. Geo. Mason of King's-road, Chelsea." *The Christian Globe:* "Among all the specimens of meat essence shown at the Health Exhibition his is rightly accounted the best." Hundreds of other valuable testimonials. The following leading hospitals supplied: The Brompton Consumption Hospital, University College Hospital, Chelsea Hospital for Women, Cheyne Hospital for Incurable Children, Victoria Hospital for Children, Soho Hospital for Women, Cancer Hospital, &c. &c. &c.

Of all Chemists, &c., and from GEORGE MASON & CO., Limited, 417, King's-road, CHELSEA, S.W.

FRAUD! — IMPORTANT NOTICE.

VIN MARIANI — COCA WINE.

VIN MARIANI should be particularly demanded, as there are several fraudulent and worthless imitations of this valuable preparation. By its use health is restored and strength obtained.

This Peruvian Plant yields from its leaves the most powerful tonic yet discovered; its effects are more speedy, more apparent, and more durable than any other known. It is a nervous excitant, giving great muscular vigour, and sustaining the human frame under unusual physical exertion and fatigue.

Delicate persons and people of nervous and excitable temperament will find this Wine a real boon, as it supplies just the stamina required. Invalids and Convalescents will find in it the gentle stimulant and sustaining power so eagerly sought after. It is exceedingly pleasant to take, and is used by abstemious persons as a Dessert Wine. It is of a low alcoholic strength, containing only the percentage of an ordinary Burgundy. It may be taken c[illegible] ously, as it does not derange the nervous system, as is too often the case where "Bark" or Quinine are given.

This wine is in great repute on the Continent, and is prescribed very largely by all the principal physicians. A Pamphlet, giving a detailed [illegible] it, will be forwarded on application to the Agents,

ROBERTS & CO. { 76, New Bond Street, London. / 5, Rue de la Paix, Paris. | 41, Bd. Haussmann, Paris. / 19, East 16th Street, New York. } MARIANI &

PULVERMACHER'S

ELECTRICITY IS LIFE.

TRADE MARK.

WORLD-FAMED GALVANIC BELTS

ELECTRICITY IS LIFE.

TRADE MARK.

For the cure of Nervous Diseases. Are the only Electric Appliances recommended by the Medical Profession. Beware of Shams!

RECENT TESTIMONIALS.

GALVANISM v. RHEUMATISM.
"Corporation-street, Birmingham,
"Sept. 7, 1885.

"Gentlemen,—I purchased a Galvanic Belt from you in April, 1883, which I found of great service in a chronic case of rheumatism. Please send me a Belt for another patient, and oblige, yours faithfully, "Thomas Wilson, F.R.C.P.
"Messrs. J. L. Pulvermacher & Co., 194, Regent-street, W."

GALVANISM v. INDIGESTION and PAIN IN BACK.
"8, Albany-villas, Duncan-road, Ramsgate,
"August 28, 1885.

"Dear Sir,—My wife has worn your Galvanic Belt for about ten weeks, and I am pleased to say it has taken away the pain in the back and also the indigestion.
"Mrs. Lyon intends calling on you the first time she is in London.—I am yours respectfully, "W. Lyon.
"Mr. Pulvermacher, 194, Regent-street, W."

GALVANISM v. WRITER'S CRAMP.
"Victoria Cottage, Northendon-road, Sale,
"Manchester, 14th August, 1885.

"Dear Sir,—I am happy to say that I find your Galvanic Battery very effective in relieving 'writer's cramp,' and also in removing the ill effects of overwork and long continued anxiety.
—Yours truly, "G. Leffler.
"Mr. J. L. Pulvermacher, 194, Regent Street, W."

GALVANISM v. RHEUMATISM.
"Framlingham, near Norwich,
"August 17, 1885.

"Sir,—I have great pleasure in stating that the Galvanic Belt I purchased from you last November has acted most satisfactorily. I have recommended your treatment to several friends for rheumatism, and hope they may reap the benefit I have done.—Yours respectfully, "F. Hutchings.
"J. L. Pulvermacher, Esq., 194, Regent-street, W."

GALVANISM v. SCIATICA.
"Northwold, near Brandon, Norfolk,
"13th August, 1885.

"Dear Sir,—I received your Galvanic Belt for sciatica in May last, and the electric power was so strong that it affected my whole nervous system in a wonderful manner, In one week I felt a different man altogether, and I cannot speak too highly in praise of your treatment.—Yours faithfully, "Arthur Thorpe.
"Mr. Pulvermacher, 194, Regent-street, W."

GALVANISM v. GENERAL DEBILITY.
"Stolford, Baldock, Herts, August 4, 1885.

"Dear Sirs,—The Galvanic Band I purchased from you for my daughter's case has given every satisfaction, and I shall want one for my brother. You are at liberty to use this letter.—Yours truly, "T. Saunderson.
"Messrs. J. L. Pulvermacher & Co. 194, Regent-st. W."

GALVANISM v. RHEUMATISM.
"Headford Castle, Headford, Ireland,
"August 15, 1885.

"My dear Sir,—I have great pleasure in giving my testimony as to the efficacy of your Galvanic Belts. I have served in India and elsewhere, and have gone through considerable hardships, fishing, hunting, and shooting in very wet weather, which superinduced rheumatism, from which, until lately, I have been a great sufferer on and off. Since wearing your Belts, however, I have never had a twinge.—Yours faithfully,
"R. J. M. St. George, J.P., late 3d Light Drag.
"J. L. Pulvermacher, Esq., 194, Regent-street, W."

ADVICE PERSONALLY, or by letter, free of charge.

FOR FURTHER TESTIMONIALS, both Medical and Private, see new Pamphlet, "GALVANISM: NATURE'S CHIEF RESTORER OF IMPAIRED VITAL ENERGY," post free on application to

J. L. PULVERMACHER & CO.'s GALVANIC ESTABLISHMENT,
194, REGENT STREET, LONDON, W. (nearly opposite Conduit Street).

RICH IN PHOSPHATES & NITROGEN.
NOT FARINACEOUS.

MELLIN'S FOOD for INFANTS and INVALIDS.

TESTIMONIAL.

Woman's Hospital and Foundling's Home,
Detroit, Mich., January 3rd, 1881.

We treat, in the course of a year, a great number of children. Since we have used Mellin's Food the mortality has been reduced by more than one half. Our children have never looked so well and healthy as they do at the present moment.

H. E. DEANE, M.D., Resident Physician.

PRICE 1/6 & 2/6 PER BOTTLE.

TRADE MARK.

ORA ET LABORE

MELLIN'S
LACTO-GLYCOSE
OR
MILK FOOD.

Price 2s. and 3s. per Bottle.

Sample and Prospectus on application to the Inventor and Manufacturer,

MELLIN, Marlboro' Works, Peckham, S.E.

HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, SEPTEMBER* 18, 1885.

CONTENTS OF No. 128.

	PAGE
Notes by the Way. By the Editor	385
Original Essays:—	
Sickness and Food. By Dr. Andrew Wilson	386
Personal Health:—	
The Remedies of Nature. By F. L. Oswald, M.D.	388
Popular Science Papers:—	
Surgery for Pianoforte Players	390
Public Health:—	
Our Ambulance Lectures. XXVI. By J. Maxwell Ross, M.B., F.R.C.S.E. (*Illus.*)	391
Healthy Houses:—	
Soils and Health. By R. Pumpelly	393
Jottings from the Journals: The Dangers of the Seashore—Hydrophobia in a New Country—A Dog's Fondness for Alcohol—Ague Altitudes	394
At the Inventions Exhibition. VII. By Our Own Reporter	395
Sanitary Appliances	396
Our Letter-Box	396
Queries and Answers	397

Notes by the Way

BY THE EDITOR.

"Health is the foundation of all our physical happiness."—*Herder.*

A SUCCESSFUL course of Combe Lectures on Physiology, delivered by me in 1882, at Hawick, resulted in a pecuniary profit to that town. This surplus was destined to form the nucleus of a fund, which, growing larger and larger under local management, and through local generosity, has at last been utilised in the erection of a cottage hospital for the town. The hospital was duly opened a few days ago by the Duchess of Buccleuch, and has cost £1,300. Personally I rejoice that the Combe Lectures have apparently had some little share in inaugurating such a worthy movement, and I can only express the hope that the hospital may prove, as under careful management it is certain to do, a most serviceable institution to the working classes of Hawick.

◆ ◆ ◆

IT has been my intention for some time past to say something in this place regarding certain tricycles, the merits of which I have had opportunities of practically testing during the last few months. I therefore seize the present opportunity of giving a few notes on Messrs. Starley Brothers' Central-gear Salvo, which I have ridden with great ease and comfort during the summer. In the first place, I have been specially gratified by the lightness of this machine. I have never ridden a tricycle which, in the absence of hill-climbing gear, exhibits such admirable qualities in respect of the easy ascent of even formidable hills. Some of my cycling rambles have led me through districts where a succession of short, sharp hills, well known to cyclists as "breathers" had to be encountered. I have been surprised at the ease with which the Salvo took these ascents. Geared level, at forty-six inches, the machine behaved perfectly; and every cyclist, short of being a trained athlete, will appreciate my declaration when I say that at the close of a long run on the Salvo, I have experienced none of the symptoms of fatigue which follow the propulsion of even a moderately heavy machine over a hilly district.

◆ ◆ ◆

I MAY say that I have tested other tricycles to which hill-climbing gear has been fitted. Excellent as was the performance of these machines, and advantageous as is the gear in question, I cannot speak too highly of the comfort and enjoyment experienced in riding my Salvo, with its light and easy running, independent of gears. Another characteristic of this machine, and one which adds to its attractive character, is the double-balance driving-gear, placed centrally, and which renders overturning, in rounding corners sharply, well-nigh an impossibility. The machine is fitted with patent detachable bicycle cranks, with an adjustable throw of from five to six inches. The saddle is supported on an Arab spring; there are ball-bearings in my machine fitted throughout, pedals included; and last, though by no means least, a band-brake, which will arrest the tricycle in the middle of any descent, is found in the list of its furnishings.

◆ ◆ ◆

I MAKE bold to say, therefore, that for all ordinary purposes of exercise and recreation in the way of cycling, the Central-gear Salvo is really a prince among machines. Nor is it by any means to be despised as a quick traveller. I have succeeded in distancing very easily, with the Salvo, machines of reputed swiftness; a fact to be attributed not to any special powers on my part, but simply to the exceeding lightness of this tricycle. I can, therefore, recommend all who desire a safe and swift cycle to give the Central-gear Salvo a trial. Like all the products of Messrs. Starley Brothers, it is unsurpassed for finish and for excellence of work in all its details.

◆ ◆ ◆

I HAVE recently also had an opportunity of trying one of Messrs. Rudge's two-track rotary Tandems. This machine is driven, as most readers know, by one large wheel on one side, and by two small wheels on the other. The latter are the steering-wheels; and either rider can steer, as the handles serve at once for rest and for guiding the machine. A high rate of speed is easily attainable on this tricycle, but it requires care in steering and in taking corners. I have also occasionally ridden a Rudge machine of the three-wheel type during the summer. This firm turn out most excellent work, and their enterprise is well known.

◆ ◆ ◆

IT is due to Messrs. Starley & Sutton to say that their Meteor Sociable, which I described in HEALTH last year as unexcelled for lightness and general excellence, has continued to merit my warmest confidence. I have enjoyed many a pleasant ride on the Sociable, which, for its easy running and for the extreme ease with which its performances in the hands of two riders are carried out, remains my favourite double machine.

◆ ◆ ◆

THE Central-gear Imperial Club machine of last year has likewise continued to give satisfaction to various friends, and to myself. This latter tricycle I had fitted with the Crypto-Dynamic Gear, which I recommend once again to all who desire to take hills easily, and to conserve their physical powers.

◆ ◆ ◆

I LEARN from Messrs. Bertram & Roberts that my suggestion with regard to the institution of cooking competitions for school-girls and for working men's wives, is likely to be adopted at the forthcoming International Cookery and Food Exhibition, to be held in December of the present year, at the Royal Aquarium, Westminster, London. Should the suggestion be adopted, there can be no doubt of its being calculated to enhance the popularity of the exhibition.

The *Ensayo Medico* of Caracas, according to the *Lancet*, is responsible for the following :—"There has just been an interesting discovery in Paraguay of a tribe of Indians furnished with tails. One day a number of workmen belonging to Tacura Tayu were engaged in cutting grass, when their mules were attacked by Guayacugan Indians, and some of them killed. The workmen pursued them, and succeeded in capturing a little boy of eight years of age. He was taken to Señor Francisco Golrochoe at Posedas, and it was then discovered that he had a tail ten inches long. The boy says that he has a brother who has a tail as long as his own, and that all the tribe have tails."

✦ ✦ ✦

Of course, we shall require some more explicit and trustworthy information on the subject of "tailed men" than is afforded in the above statement before the assertions therein contained can be accepted. In reply to several correspondents, I may add that even if the above statements were found true, it would simply show either a "reversion" to a former state of things on the part of the Indians in question, or a "survival" of a very remote state. The latter alternative is one which no biologist will accept without much hesitation and accurate proof.

✦ ✦ ✦

Someone has been recommending nitrite of amyl as a remedy for sea-sickness. Naturally, any remedy which professes to obviate the nausea of *mal-de-mer* is greedily sought after by voyagers who suffer from the pains and pangs of the distressing ailment. The following remarks, quoted from the *Globe*, however, are well worthy the attention of readers who may be disposed to avail themselves of a trial of this very dangerous remedy. I suspect that the old rule of the individual and his personal peculiarities operates here as in so many other affairs of life.

✦ ✦ ✦

"'An Ocean Traveller,' who writes to say that Dr. Dingle's recommendation of nitrite of amyl as a preventive of sea-sickness was anticipated by a Dr. Critchett (not the well-known oculist) in 1876, is very modest. He does not deny the statement that it is a specific, but he suggests that, as the effects of three drops on a handkerchief, in his own case, were simply horrible—making his heart beat at a furious rate, and causing faintness and sickness, with cold perspiration and intense pain in the head and chest, ending in insensibility—most people would probably prefer sea-sickness."

✦ ✦ ✦

Dr. H. Greenway, the Medical Officer of Health of Plymouth, sends me a circular on the health of that town, designed as a guide to the inhabitants in view of the precautions necessary to be taken against cholera infection. Every family in Plymouth, I learn, has been supplied with a copy of the handbill. I need say nothing regarding the high wisdom of Dr. Greenway and his colleagues in issuing such a notice. The remarks on Ventilation, Cleanliness, Food, and Water Supply are all that can be desired. On reading this and like tracts, one is struck more and more forcibly by the fact that, after all, the precautions which are to be taken against cholera are, in reality, those which tend to ward off all other forms of epidemic disorder. As was recently expressed in Health, "Dirt is the parent of cholera." Therefore, by ensuring purity of person and cleanliness of surroundings, we may prevent that and many other attacks which breed amongst the filth and refuse allowed to accumulate in or near human

Original Essays

"Life is not to live, but to be well."—*Martial.*

SICKNESS AND FOOD.

By Dr. Andrew Wilson.

An important remark is made by Dr. Roberts when he tells us that perfect cooking is an all-important condition in dealing with farinaceous foods (those containing starches and sugars), and with fresh vegetables. That such articles are often difficult of digestion is true, but the difficulty in question is due, not to the innate nature of the foods, but to imperfect cooking. Potatoes and pastry are often to be placed in the same category. They are not, in themselves, injurious, but defective preparation often renders them so.

We have seen that Dr. Roberts carried out a series of experiments upon the influence of tea, coffee, alcohol, &c., on digestion in the mouth and stomach—two processes, which, it must be remembered, are essentially different in nature. Again, we have to distinguish, firstly, between the actions which the accessories of our food, such as tea, coffee, &c., possess upon the chemical processes seen in digestion; and, secondly, those actions they exhibit upon the digestive glands, and on the muscular movements of the stomach and intestine. Dr. Roberts says that such actions are not only distinct and different, but that they are opposed to one another. All the food-accessories were found to exert a more or less retarding influence on the speed of the chemical processes whereby the elements of food are separated, recombined, and otherwise elaborated. Contrariwise, some, if not all of, the accessories of our food exercise a stimulating action on the glands of the stomach, which manufacture the gastric juice, and on the movements of the stomach. As already noted, differences exist between the action of such substances on digestion in the mouth and that in the stomach.

The conclusions regarding alcohol become specially interesting from the wide use of this substance in beverages, while it is of the highest importance that we should know the exact uses, advantages, as well as the disadvantages and dangers, which may attend the use of alcohol with food, Dr. Roberts may here be left to speak for himself :—

"The distilled spirits—brandy, whisky, and gin—were found to have but a trifling retarding effect on the digestive processes, whether salivary or peptic (that is in the mouth or stomach respectively), in the proportions in which they are commonly used dietetically. Their obstructive effects only became apparent when used in quantities which approached intemperance. Taking this in conjunction with the stimulating action which they exercise on the glands which secrete the digestive juices, and on the muscular activity of the stomach, their effect in these moderate dietetic proportions must be regarded as distinctly promotive of digestion.

"Wines and malt liquors exhibited an action differing considerably from that of ardent spirits. Wines were found to be highly inimical to salivary digestion. Even very small quantities of sherry, claret, hock, or champagne, inhibited the action of saliva on starch to a very high degree. (The natural use of the saliva of the mouth is to convert starch into grape sugar.) This is due to the considerable acidity which all wines possess. When this acidity was neutralised by the addition of an alkali, the inhibitory effect of wines on starch-digestion was entirely removed. It is a common practice, as you know, to mix wines—especially sherry, claret, and hock—with soda,

seltzer, or some other effervescent table-water. These waters all contain a charge of alkaline carbonate, and it was found that, when wines were thus mixed, they ceased to embarrass salivary action. This practice may, therefore, be looked on as highly commendable in the case of persons of weak digestion.

"On peptic (or stomach) digestion, wines exhibited a retarding effect altogether out of proportion to the alcohol contained in them. Both the stronger and the lighter wines, except in very moderate proportions, checked the speed of peptic digestion. In the customary dietetic use of wines with meals there is, probably, a double action; on the one hand, a stimulating action on the secretion of gastric juice, and on the muscular contractions of the stomach; and on the other hand, a retarding effect on the speed of the chemical process. In the case of persons of weak digestion, wines should be taken sparingly, and the quantity so adjusted as to bring out their stimulating action without provoking the retarding effects which follow their more liberal use. Champagne was found to have a distinctly less retarding power than an equal volume of claret or hock. This I judged to be solely due to the mechanical effects of the effervescence and liberation of gas, whereby a more efficient stirring-up of the digesting mass would be effectuated. Effervescent wines, therefore—other things being equal—favour the speed of peptic digestion more than still wines."

These conclusions are of eminently practical nature. They represent the results of accurate and laborious experimentation; and they constitute, therefore, a safe basis for the regulation of digestion, as well as a corrective to notions of extreme kind in the direction of total abstinence, erroneously, as well as injudiciously, pushed forward as a rule for the observance of all, without reference to age, constitution, or other circumstances of life and work.

Passing now to the influences exhibited by tea, coffee, and cocoa on digestion, we meet with equally interesting results. There is much valuable information for housewives and others in the knowledge which Dr. Roberts gives us, in the shape of information regarding the effects and uses of tea and its allies on other foods.

"The effects of tea, coffee, and cocoa exhibited some interesting diversity. It was found that tea had an intense inhibitory effect on salivary digestion; even in very minute proportion, it completely paralysed the action of saliva. On the other hand, coffee and cocoa had only a slight effect on salivary digestion. The inhibitory action of tea on saliva was found to be due to the large quantity of tannin contained in the tea-leaf. Some persons have supposed that by infusing tea for a very brief period—two or three minutes—the passage of tannin into the beverage could be avoided. This, however, is a delusion. Tannin is one of the most soluble substances known; it melts like sugar in hot water. One gentleman of my acquaintance, in his horror of tannin, was in the habit of preparing his tea by placing the dry leaves on a paper-filter, and simply pouring on the boiling water. In this way he thought to evade the presence of tannin in his tea.

"But if you try the experiment, and allow the product, as it runs through the filter, to fall into a solution of perchloride of iron, you will find that an intense inky-black coloration is produced, showing that tannin has come through in abundance. You can no more have tea without tannin than you can have wine without alcohol; and I found, experimentally, that tea infused for two minutes had almost exactly the same inhibitory effect on digestion as tea infused for twenty or thirty minutes. If you wish to mitigate the effects of tea on salivary digestion, you should direct the patient not to sip the beverage with the meal, but to eat first and drink afterwards. In this way time is given for the saliva to perform its functions unhindered.

"Another device is to introduce a pinch of carbonate of soda into the tea-pot; this removes the deterrent effect of tea on salivary digestion; it is a practice occasionally followed in some households, under the idea that soda helps to extract the virtues of the tea-leaves. It was found that the addition of so small a proportion as one per cent. of the weight of the dry tea greatly mitigated its injurious effect on starch-digestion, and that twice this quantity (two per cent.) almost entirely removed it. This latter proportion corresponds roughly to ten grains of bicarbonate of soda to an ounce of tea-leaf.

"The effects of tea, coffee, and cocoa on peptic digestion were found to be as nearly as possible alike for infusions of equal strength. All three exercised a retarding effect when their proportion in the digesting mixture rose above 20 per cent. These beverages should, therefore, be taken very moderately by persons of weak digestion. The good reputation of cocoa in regard to digestion seems to be wholly due to the fact that it is used in weaker infusion than tea and coffee. The directions for the preparation of this beverage, printed on the packets of cocoa sold in the shops, indicate a strength of about 2 per cent., whereas a medium tea is usually made of a strength of 4 to 5 per cent., and a medium coffee of a strength of 5 to 7 per cent. The strong coffee which it is customary to hand round after dinner must have a powerful retarding effect on gastric digestion; and, although this practice may be salutary to robust eaters, it is not to be recommended to those of feeble peptic power."

The hints here given cannot fail to be useful, and should be clearly borne in mind. The general results are that persons of weak digestion should be sparing in their use of tea and coffee especially, that these beverages should not be made of great strength, and that their combination with solid foods is to be avoided as much as possible by persons in robust health, and to be completely avoided by those whose digestion is weak. Dr. Roberts's experiments, in fact, emphasise the oft-repeated remark and advice that tea, as a rule, is consumed in too great quantities, and by persons upon whose digestion and health it has a prejudicial effect. Meat-teas are to be roundly and soundly condemned.

The second division of persons suffering from digestive troubles includes those who are able to take *liquid foods* only. In such cases there exists either great irritability of the stomach and digestive system, or actual disease of the alimentary organs. Here we enter the field of animal chemistry with its beautiful researches on the peptonising or pre-digestion of milk, by the use of the preparations Dr. Fairchild, Messrs. Benger, and others have brought into the market.

The chief of all liquid foods is *milk*. Of this food, Dr. Roberts speaks as follows:—

"Milk contains, in almost equal proportions, proteid (or nitrogenous) saccharine (or sugary) and fatty matter, and is capable alone, as we know, of sustaining life. All plans of feeding the sick on liquid food centre round milk. It can be given alone, or mixed with tea, coffee, or cocoa, or with lime-water, soda-water, ardent spirits, or with farinaceous gruels of various sorts, or as buttermilk, koumiss, or whey. Were it not for the necessity of change and

Sanitary Inspections.—Fee for Survey and Report, in London 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

variety we should, in a large number of cases, want nothing but milk. It should, however, be remembered that milk is by no means a perfect kind of liquid food. In the course of its digestion, both in the stomach and in the intestine, milk, or rather the casein contained in it, is coagulated into solid masses, and these masses have to be redissolved before they can be absorbed. Not unfrequently, if milk be given too freely, these curdy masses fail of being dissolved; and they pass down the intestine more or less unchanged. In this way milk may become an objectionable form of liquid food; these curds may block up a narrowed part of the intestine, or they may undergo putrefactive changes, and thereby irritate the tender or ulcerated mucous membrane. This drawback to the use of milk may be obviated by predigesting or *peptonising* it, which is easily accomplished at a warm temperature by means of pancreatic extracts. The bitter flavour of peptonised milk is, however, nauseous to many invalids, and you cannot fully peptonise milk without developing this unpleasant flavour. One of the best means of covering the taste of peptonised milk is to add coffee to it.

"Another device, which may sometimes be adopted with advantage, is to add the pancreatic extract to cold or iced milk. In the cold, the action of the ferment is comparatively slow, and it takes some hours to produce an appreciable change of flavour. But as soon as milk, thus charged with the ferment, is swallowed and passes into the warm atmosphere of the stomach, it is rapidly digested. I have seen, in cases of typhoid fever, when undigested curds of milk were observed to be coming away, this plan followed by the immediate disappearance of these masses from the motions. But the palates of invalids are sometimes abnormally sensitive, and they detect, and resent, the mere presence of the ordinary pancreatic preparations in articles of food, quite apart from the digestive changes produced by them.

"Recently, Mr. Benger has placed at my disposal a pancreatic preparation which is absolutely free from taste and smell. This preparation, of which I have here a specimen, consists of the pancreatic enzymes (or active principles) in a highly purified state, under the form of a light, nearly white, powder. It is not hygroscopic, and may be kept unchanged for an indefinite period fully exposed to the air. This beautiful preparation is excessively active, and no palate can detect its presence in milk or other article of food until its effects are revealed in the process of digestion. I am inclined to think that it will prove a valuable addition to our resources when it is considered desirable to subject food to a process of pre-digestion, and still more when it is desired to add the ferment to the food in the cold state, with a view to promoting its rapid digestion after being swallowed."

Dr. Roberts adds that the pancreatic preparation to which he alludes above acquires a slightly-peculiar odour if it be kept in a tightly-corked bottle, this odour passing off when it is exposed to the air. The value of *peptonising* foods—that is, of causing them to undergo a stage in the digestive process—before they are swallowed, is thus clearly brought out. Cod-liver oil so treated, as in the case of Carnrick's preparation of cod-oil and milk, becomes at once absorbed, and is highly palatable in addition. That sick-feeding of the future will largely resolve itself into the skilful predigestion of the foods they absorb, admits of no doubt whatever.

It is stated that the practice among reformed inebriates is to take advantage of the bracing properties of tea, "thus repudiating," says a medical paper, "absolute teetotalism, and adopting the plan of total-tea-ism."

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE REMEDIES OF NATURE.

By Felix L. Oswald, M.D.

CONCLUDING PAPER.

After the paroxysm of the disease has subsided, the chest fever can be alleviated by the free use of cold water and strict abstinence from solid food. Avoid overwarm bedclothing. By a load of warm covers alone, a common catarrh can be aggravated into a hot fever till the blanket-smothered patient is awakened by the throbbing of a galloping pulse. Exercise would promote the discharge of the accumulated serum, but, while the patient is too sore to turn over in his bed, gymnastics are out of the question, and their effect must be accomplished by "passive exercise," manipulation of the chest, and a swinging motion in a hammock or a rocking easy-chair.

With the aid of fresh air and abstinence the remedies of the movement-cure might be entirely dispensed with, if the accumulation of purulent matter were the only risk, but in acute pleurisy there is a greater danger from another cause—namely, that the inflamed surface of the membrane covering the lung has a tendency to adhere to the lining of the chest, and thus obliterate the space between the layers. The consequences of that result would be a permanent embarrassment of breathing, or even the total paralysis of the affected lung. Passive exercise and friction (rubbing the less-affected parts of the chest with a bathing-brush) will, however, not fail to obviate that danger. As soon as Nature finds relief in a copious expectoration, the crisis of the disease is weathered, and further precautions may be limited to rest and a sparse but emulsive diet—a modicum of sweet cream with oatmeal-gruel and stewed raisins.

That pleurisy was formerly considered a most fatal disease can be more than sufficiently explained by the fatal measures of treatment which were then in vogue. Dr. Buchan's "Family Medical Library," not more than thirty years ago about the most popular pathological compend, contains the following directions:—"In the beginning of a pleurisy the only efficient course is to make the patient stand up on the floor, while blood is drawn from a large orifice *until he faints or is about falling.* . . . If, after the first bleeding, the pain, with the other violent symptoms, should still continue, it will be necessary to take eight or nine ounces more. If the symptoms do not then abate, and the blood shows a strong buffy-coat, *a third or even a fourth bleeding may be requisite.* . . . Topical bleeding has also a good effect in this disease. It may be performed by applying a number of leeches to the parts affected, or by cupping, which is both a more certain and expeditious method than the other. . . . Then, take: Solution of acetated ammonia, three drachms; mint-water, one ounce; tincture of opium, twenty-five drops; sirup of tolu, two drachms; antimonial wine, thirty drops. Nothing is so certain to give speedy and permanent relief as a combination of ipecac, calomel, and opium." And in that

---

An Important Health Tract.—A Short Catechism on the Cholera, by Dr. Thomas J. Hutchinson, reprinted from Health, and adapted for distribution by Health Societies, City Missionaries, and all interested in the diffusion of health-knowledge among the masses. Ten copies for 9d.; 20 for 1s. 3d.; 50 for 2s. 6d.; and 100 for 4s., post-free, to be obtained from the Publisher, Health Office, 74, Great Queen-street, W.C.—[Advt.]

form of the disease known as "bilious pleurisy," "emetics and mercurial cathartics are of the utmost importance. . . . Purgatives should be continued through the whole course of the disease; . . . a blister should be applied *of sufficient size to embrace the whole breast"!* ("Family Medical Library," pages 174, 183).

Croup is an obstruction of the upper air-tubes, induced by the lethargic influence of overfeeding and warm, impure air. How an overloaded stomach reacts on the functions of the respiratory organs, many adults have an opportunity to experience in the strangling sensations of a "nightmare," though the respiratory stimulus of the cool night-air generally helps to overcome such affections, especially if the sufferer can ease his lungs by a contraction of his arms or by turning over on his side. But infants are not only more grossly overfed than the most gluttonous adults, while the phlegm-producing quality of their food increases the danger of respiratory obstructions, but that danger is still aggravated by feeding their lungs on the sickening air of an overheated and ill-ventilated bedroom, and still further aggravated by swaddling and bandaging them in a way to prevent every motion that might help to ease their distress. *Spasmodic croup* generally occurs after the establishment of a plethoric diathesis — after persistent overfeeding has turned a baby into a mass of fat and fretful sickliness. Some night, usually after a heavy surfeit, the child is awakened by a feeling of suffocation and gasps for breath till the obstruction is removed by a violent fit of coughing. "Croup-syrup" (treacle and laudanum) subdues the symptoms by lethargizing the irritability—for a little while, for soon a second and more violent fit has to complete the work of the first paroxysm by expelling the accumulated phlegm.

But a far more dangerous form of the disease is developed when the predisposing causes are aggravated by an inflammation of the larynx. Inflammatory croup does not occur unawares, but is preceded by a very peculiar cough, a hoarse, cough-like bark, mingled with strange wheezing and metallic sounds. The windpipe is congested, and in that note of warning appeals for relief from impure air and deliverance from the influence of a crapulent diet. Nine times out of ten the effect of its appeal is a dose of narcotic cough-medicine, more tightly-closed windows, and a hotter stove. The process of surfeit in the meanwhile continues; the windpipe, already abnormally contracted by its inflamed condition, becomes less and less able to resist the obstructing influence of the accumulated phlegm; at night, when the exclusion of every breath of fresh air* has still further reduced the functional energy of the respiratory organs, a viscid matter rises in bubbles, and one of these bubbles, like a tenacious membrane, closes the tube of the larynx. Suffocation results, and, in the ensuing struggle for life, Nature has a very slim chance to prevail. In every civilised state thousands perish thus every year—killed by domestic contrivances as surely as the prisoners of Surajah Dowlah were killed by the architectural arrangements of the Black Hole. If the physician is only called in the last stage of the attack, inflammatory croup constitutes one of those exceptional cases where artificial causes of disease have to be met by artificial remedies. The far-gone exhaustion of the patient, a thin, expiring pulse, would indicate that tracheotomy, or the opening of the windpipe, offers the only hope of salvation. A violent, suffocating, and spasmodic cough would indicate that the expulsive efforts of Nature require the aid of a swift emetic, tartar or ipecacuanha.

But, if the symptoms of danger are heeded in time, croup is as curable as a common catarrh. As soon as the characteristic cough betrays the condition of the windpipe, the patient—infant or adult—should be reduced to two meals, the last one not later than four hours before sunset. Flesh-food, greasy made-dishes, narcotic drinks, as well as all kinds of alcoholic stimulants, should be strictly avoided. Before eight, *the bed should be removed to a cool and carefully-ventilated room.* Families who have no alternative should not hesitate to open every window for at least fifteen minutes, and in the meanwhile compromise with their prejudices by carrying the child to the next neighbours, rather than bring it back before the air of the bedroom has been thoroughly purified. A draught of very cold air might possibly excite a cough that would precipitate the crisis of the disease, though by no means lessen the chances of a lucky issue. But more probably fresh air, whether cold or cool, would so re-enforce the remedial resources of Nature that the inflammation would subside in the course of a few days.

If, in spite of such precautions, a strangling-fit should occur at night, the child should be immediately *raised to a half-upright position*, by making the weight of the body rest on the knees, with the head slightly inclined (face downward), the elbows back, and the hands resting against the hips—the position which a person would instinctively assume in the endeavour to aid an expulsive effort of the lungs. Between the paroxysms ease the chest by a *quick forward-and-backward movement of the arms*, and by *persistent friction with a wet brush, applied to the neck and the upper ribs.* Under the influence of these stimulants, combined with the invigorating tendency of fresh air, the organism will employ all its resources to the best advantage and soon relieve itself by a sort of retching cough. If the difficulty has not been aggravated by the use of "croup-syrup," the patient will rest at ease for the remaining hours of the night. A week may go by without a recurrence of the suffocating fit; but only the subsidence of the inflammation—indicated by the diminished hoarseness of the cough—gives a guarantee that the danger is past.—*Popular Science Monthly.*

* "I lately attended an infant, whom I found muffled up over head and ears in many folds of flannel, though it was in the middle of June. I begged for a little free air to the poor creature; but, though this indulgence was granted during my stay, I found it always on my return in the same situation. Death, as might have been expected, soon freed the infant from all its miseries; but it was not in my power to free the minds of its parents from those prejudices which proved fatal to their child" (Dr. G. G. Norwood, "Management of Children," (p. 619).

Insect-bites.—One drachm each of spirits of chloroform and spirits of camphor, and two grains of corrosive sublimate, in four ounces of water, will allay the irritation caused by insect-bites.

Novel Stamping-pad.—Thirty or forty parts of crude anhydrous glycerine are saturated warm with any desirable blue, red, green, or black soluble aniline or eosin dye. Ten parts of fine glue are softened in water for twenty-four hours, the water drained off, and the swollen glue quickly dried between linen cloths, and then melted on a water-bath in the glycerine, the larger or smaller quantity being taken, according to the kind of glue. The water contained in the swollen glue is evaporated without much stirring, which would cause air-bubbles and make the mass foamy. It is then cast in tin boxes. This stamping-pad mass, or slab, is best adapted to rubber-stamps, but it can also be employed for a metal stamp, if the surface of the latter is roughened with sand-paper or emery, to make it take the ink. Should the pad get hard on the surface from not being used for a long time, wash the surface with a sponge dipped in warm water or vinegar and water.

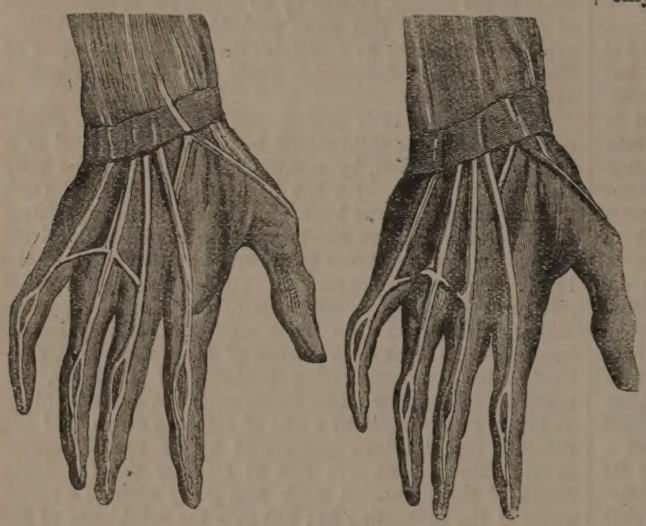
Popular Science Papers

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

SURGERY FOR PIANOFORTE PLAYERS.

The most earnest advocates admit that evolution is an extremely slow process: that it produces wonderful results, but that its operations occupy a corresponding amount of time. Certain it is, that the process is not keeping pace with the requirements of modern times, and that the artificial development of the human faculties has of late taken precedence over the natural results of time.

Helmholtz, after making an exhaustive study of the human eye, declared that should he receive an optical instrument of man's making which contained so many defects as the eye, he should be justified in returning it to the manufacturers. But it is these very defects which have stimulated man's ingenuity to find a remedy. So completely has the science of optics come to his assistance, that with the help of the lens in microscope and telescope, he is possessed of an organ capable at once of studying the infinitesimal world represented by a drop of water or of penetrating the immensity of a solar system. Yet no progress, except, perhaps, in the power of discrimination, is being made with the living instrument, for the eye of the present school child is probably much inferior in strength and capacity to that of his pioneer grandfather at an equal age.



The left-hand figure shows the sinews before, and the right-hand figure exhibits them after, the operation.

In other directions, however, man may be improving. His hands, from their constant use of sensitive instruments and their employment in painstaking investigations, have probably gained a nicety and delicacy of touch which were quite unknown to earlier generations. But even here, the progress has not been sufficient to satisfy his wants, and the anatomy of the hand is undergoing a number of modifications due to special treatment or to surgical science. The delicate manipulations of the chemist and physicist or the effective touch of the artist are by no means natural; they result only from the most careful training. In music, whether in using the keys of an instrument, or in working the strings directly, as in zither or harp, every student remembers the weary practice which has gained him his present proficiency. No amount of devotion, however, seems to have succeeded in overcoming the obstinate weakness of the third or ring finger. Innumerable exercises and daily fingering of the key-board have left that member but slightly stronger at the end than in the beginning. When, for instance, the middle and little finger are pressed upon the keys to produce a continuous sound, it is almost impossible to bring the ring finger into intermittent use with a strength sufficient to produce any equality in the tones.

The reason is very simple, but rather curious. The *extensor communis digitorum* muscle, which moves and extends the ring finger, is connected by lateral or accessory tendons (or sinews) with the muscles of the neighbouring digits, and when these are held down, the accessory tendons prevent the free action of the muscular fibres of the third finger, and hence the clumsy result. These accessory sinews are sometimes found in both hands, often only in one, which in this case is usually the right hand.

Occasionally the extensor muscle of the ring finger splits at the point of departure of the accessory tendons, and when reunited leaves a button-hole appearance, and now and then these tendons are entirely absent. The possibility of removing this restriction in the use of the ring finger by dividing the accessory tendons suggested itself many years ago, but it is only of late years that the operation has become at all common.

Dr. Forbes, the Demonstrator of Anatomy at Jefferson College, and Mr. Zeckwer, the Director of the Philadelphia Musical Academy, have both been much interested in the subject, and have done much to make the operation popular. The illustrations show respectively the muscular system of the right hand in its natural condition and after the operation has been performed. The tendons connecting the ring finger with its neighbours are shown in their intact state in the left-hand figure; the division of these tendons being clearly shown in that on the right-hand side of the illustration. By this division of the accessory tendons, the liberation of the ring finger was complete. After such an operation, which is often performed on both hands at one sitting, and without the loss of perhaps more than half-a-drachm of blood, the finger could be elevated an inch higher above the plane of the hand, and could be used with delightful freedom. There was an entire absence of the sense of exertion which was formerly so painful. Out of fourteen operations which have been performed by Dr. Forbes, all were entirely successful, and in none did any unpleasant results follow. Nor is this resulting liberty at the expense of power in any other direction. The operation does not decrease in the least the ordinary functions of the extensor muscle. Since it can be performed by a surgeon of any competence, it promises in time to become a part of every conservatory course.

As the downwardly projecting point on the outer ear is considered by evolutionists to be the remnant of a once pointed ear, so it is not unreasonable to suspect that the unnecessary tendon may be the last traces of a former webbed formation of hand and foot. That its occurrence is not constant is an undoubted proof of its rudimentary nature. It is quite possible that future students of music will hear with wonder of a binding tendon quite unknown in their own experience.—*Scientific American.*

Buchan's Patent Prize Medal I.C. Exhaust Ventilators. The best in the market. Illustrated Price Lists free from W. P. Buchan, S.E., 21, Renfrew-street, Glasgow.—[Advt.]

Public Health

"Health is the first Wealth."—*Emerson.*

OUR AMBULANCE LECTURES:

What to do in Emergencies and Accidents before the Doctor comes.

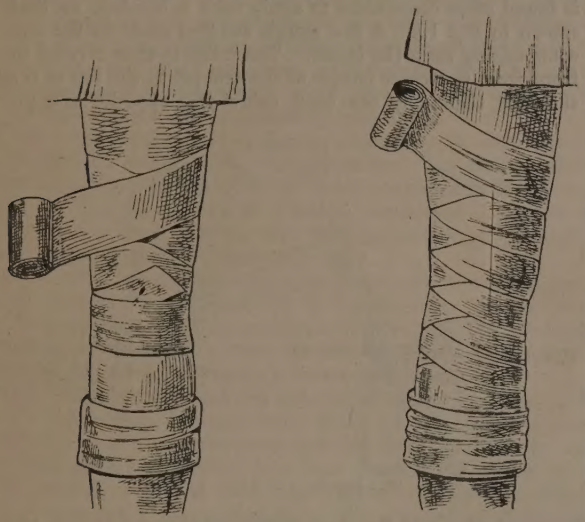
By Various Writers.

No. XXVI.—BANDAGING.

By J. Maxwell Ross, M.A., M.B., F.R.C.S.E.

The *ankle-joint* is bandaged by means of the figure-of-8 turns. Their application is shown in Figs. 8 and 11, and described in the preceding paragraph.

The *knee-joint* is also bandaged by means of figure-of-8 turns. Their application requires some care, as they are very liable to slip. A simple spiral is first made below the



Figs. 10 and 11.—Spica of Knee-joint (Heath).

knee-cap. This is followed by a turn passing upwards and outwards across the knee-cap to the outer side of the limb, and round by the ham to across the knee-cap again, but now taking a direction downwards and outwards (Fig. 10). This is again brought round by the ham below the joint, and the figure-of-8 repeated several times, till a result somewhat like that shown in Fig. 11 is obtained. Another method of making figure-of-8 turns on the knee-joint is to make the first turn—a spiral—over the centre of the knee-cap. The next turn is carried above the kneecap covering in the upper part of the spiral already made in a somewhat crescentic form, round the back of the joint to the point from which it started. It is now made to take a similar crescent-like course below the knee-cap, and to cover in the lower part of the first spiral, so that only a small elliptical portion of it is left exposed to view between these two turns, which are, of course, the upper and lower loops of a figure of 8, the meeting of the loops being at the back of the joint. These figures of-8 are continued, each alternate loop being above and below the knee-cap, respectively, and getting a little further away from it each time, from which circumstance the bandage is known as the divergent-spica of the knee (Fig. 12).

Fig. 12.—Divergent Spica of Knee-joint.

The *Thigh* is bandaged by means of simple spirals and reverse spirals, which present no difficulty. When it requires a bandage, the whole limb, from the foot upwards, should be taken in, the leg-bandage being continued over the knee in the form of an ordinary figure of 8.

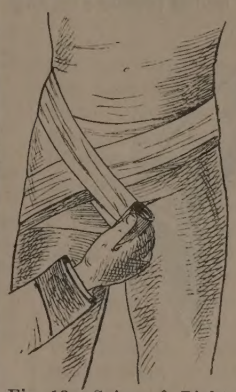


Fig. 13.—Spica of Right Groin.

The *Groin Bandage* is like other joint bandages, a large figure-of-eight carried several times round the upper part of the thigh and lower part of the abdomen. It is fixed first on the thigh by a simple spiral, then carried across the front of the abdomen to the opposite side, round the back and along the groin to the inner side of the thigh (Fig. 13). This is repeated two or three times, as often as may be necessary. Both groins may be bandaged at once by making first a few figure-of-eight turns on one groin, let us say the right, then carrying the roller across the front of the abdomen to the opposite thigh, round which it is brought and wound along the groin to the hench-bone, from which it is brought round the back to the point from which it started. It is, however, easier for a beginner to bandage each groin separately.

The bandages for the upper limb are very similar to those for the lower.

The *Fingers* are bandaged by simple spirals (Fig. 14). A turn is taken first round the wrist, then brought down the back of the hand to and along the finger which is to be bandaged down to its tip. It is then carried by simple spirals to the top of the finger over the back of the hand, where it crosses the former turn, and one or two turns round the wrist suffice to complete it.

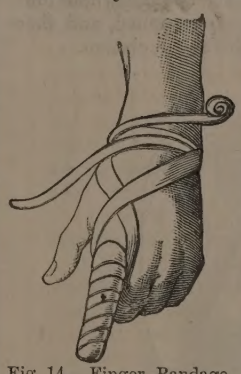


Fig. 14.—Finger Bandage.

The *Thumb* may be bandaged in the same way, or by figures-of-8, making a spica. The first turn is a simple spiral on the wrist to fix the bandage. The roller is then carried over the back of the thumb, round in front and back again, so as to cross itself, thus making a small loop, which encloses the thumb. It is now brought round by the opposite side of the hand to the point from which it started. This is repeated till the whole of the thumb, except nail and tip, is covered in. A series of figures-of-8 are thus formed, the loops of which are unequal, the smaller of the two embracing the thumb, the larger the hand (Fig. 15).

Fig. 15.—Spica of the Thumb.

The *Wrist-Joint* is bandaged by means of figures-of-8, the application of which will be at once understood by a reference to Fig. 16.

The *Arm* is bandaged in a manner very similar to the leg. One or two figures-of-8 re first made on the wrist (Fig. 16), and the roller carried

up the forearm by simple or reverse spirals, as may be found necessary (Fig. 17).

The *Elbow* is covered in by means of figures of 8, which may be applied as on the knee, with the limb in a straight position, or the joint may be bent and the bandage applied as on the ankle—the loops of the 8 meeting in front, in the hollow of the joint. The peculiarity of this hollow with the biceps tendon standing out in the centre, makes it usually necessary to have a piece of cotton wadding on either side of the tendon to relieve undue pressure on any

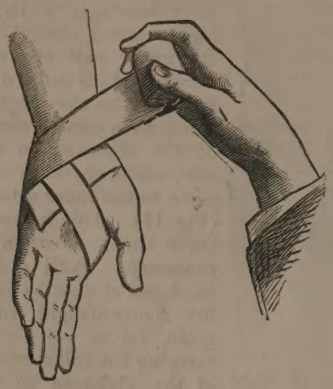


Fig. 16.—Figure-of-8 for Wrist.

part, and to allow the bandage to accommodate itself more easily to the joint. The elbow-tip is sometimes left uncovered like the heel.

The *Upper Arm* is done like the thigh by spirals, which may be simple or reverse. When, however, the upper part of a limb has to be bandaged it will be found better to begin from the hand or foot and include the whole limb. By so doing the pressure will be equally applied, and there will be less risk of interference with the circulation.

Fig. 17.—Bandage of Forearm.

It is sometimes necessary to fix dressings on the shoulder or the arm-pit. This may be done in both instances by modified figure-of-8 or spica bandages. In the case of the shoulder, a few spirals, simple or reverse, should first be made on the arm as in Fig. 18. When the arm-pit is reached the roller should be carried across the front of the shoulder, round by the back, brought under the opposite arm-pit (the right in the figure), across the front of the chest to the shoulder again, where it is made to take a turn round the arm-pit, passing of course from back to front, and up to the point from which it is started. A figure of 8 is formed, the large loop being round the chest, the smaller round the arm-pit. This manœuvre is repeated several times, giving a result like that in Fig. 18.

The same bandage will do for the arm-pit, but usually it

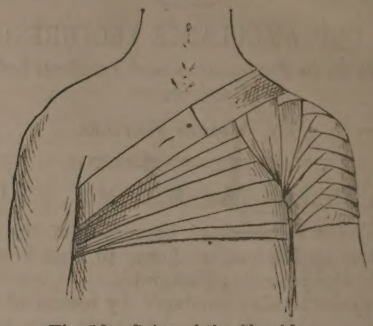


Fig. 18.—Spica of the Shoulder.

is found more convenient to apply such a bandage as that shown in Fig. 19. A few spirals are first made on the arm commencing from the inside. The roller is then carried in front from the lower border of the arm-pit to the top of the shoulder, thence by the back below the opposite arm-pit

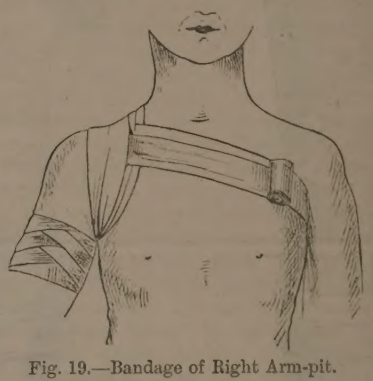


Fig. 19.—Bandage of Right Arm-pit.

across the front of the chest to the top of the shoulder, and so making the large loop of the figure of 8, the smaller of which is then completed by bringing the roller across and behind the shoulder to the arm-pit, whence it started. This may be repeated as often as necessary.

Why Tumblers are so Called.—Glass drinking-cups have been found in Anglo-Saxon graves, and they are all round-bottomed. Such cups could not be made to stand upright, and it has been supposed they were so designed in order to cause the drinker to empty them at once. This feature is said to have given rise to the word "tumbler," which has been applied to our drinking vessels, though these do not possess the curious shape of the ancient cups.

Paste that will Keep.—Dissolve a teaspoonful of alum in a quart of water. When cold, stir in flour, to give it the consistency of thick cream, being particular to beat up all the lumps. Stir in as much powdered resin as will lie on a sixpence, and throw in half-a-dozen cloves, to give it a pleasant odour. Have on the fire a tea-cup of boiling water; pour the flour mixture into it, stirring well all the time. In a few minutes it will be of the consistency of treacle. Pour it into an earthern or china vessel, let it cool, lay a cover on, and put in a cool place. When needed for use take out a portion and soften it with warm water.

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

SOILS AND HEALTH.

By R. Pumpelly.

The soil, especially the first few inches or feet below the surface, is the ante-chamber of life—the laboratory in which operate incessantly the processes by which inert matter is prepared for the nourishment of life. It is this, because it is also the tomb of all terrestrial living matter. Here is the realisation of the Phœnix-myth; the slow combustion of organic matter leaving a residuum, from which springs the new life of succeeding generations.

These processes of the transformation of matter are the work of the low forms of microscopic life which are known as *bacteriâ*, and are gifted with the capacity of enormous and immensely rapid multiplication. This world of microscopical life is vast as regards the distribution and number of its living entities. These minute organisms are known to be intimately connected with many of the fundamental processes of the organic world, and our knowledge of their range of activity is constantly increasing.

They may be considered practically to stand in close genetic relations to many diseases; but the question of absolute differentiation of forms with specific functions, or of the possibility of Protean functional characteristics among them, varying with their surroundings, is one of the present great problems of biology.

The great majority of pathologists now consider the infectious, and most of the contagious, diseases to be dependent on these low forms of life; and the tendency is to consider that certain diseases or groups of diseases are produced only by specific forms of bacteria.

These organisms are wide-spread—especially the various forms that are associated with putrefaction and mould. Only on high mountains, and far from land on the ocean, is the air practically free from them. Elsewhere the air, water, and soil teem with them. Their abundance is necessarily proportionate to the amount of decomposing organic matter in the neighbourhood, since they are themselves the scavengers, on which the processes of decomposition depend.

Few people realise what an important part the soil plays in our lives. The water we drink (unless from cisterns) has leached through it. The air we breathe is frequently loaded with its dust. It is in our food.

The soil is highly porous; and the interstices between the grains are filled with water or with air—"ground-water" or "ground-air." The ground-air fluctuates with the varying barometric pressure, and with the rise and fall of the ground-water in rainy and dry seasons. The ground-water flows according to the common laws of hydrostatics, but with a movement retarded by friction.

A town on a river-flat is built over a continuous sheet of slowly-moving subterranean water, and most houses are built where water is accessible within a few feet from the surface. In view of the fact that our wells and the cellars of our houses are in more or less close proximity to these centres of pollution, it was thought desirable to ascertain to what extent the different soils act as filters in arresting the spores of bacteria. This investigation, which was carried out for the National Board of Health by the writer, assisted by Dr. Smyth, brought out very clearly three facts:—

I. All soils finer than very coarse sand have practically a continuous capacity for arresting the spores of bacteria from infected *air* filtering through them.

II. No soil, no matter how fine, can arrest and hold back the spores of bacteria contained in *water*. The experiment on which this statement rests consisted in filtering unsterilised water through one hundred feet of pipe filled with fine sand which had been sterilised by heating to a red heat. This pipe was connected by an air-tight joint with a flask of sterilised beef-infusion, and the whole apparatus left for several weeks before use. The first drop of water that passed through these hundred feet of sand infected the beef-infusion, causing it to putrefy.

III. Neither bacteria nor their spores can detach themselves from a liquid or from a wet soil, and pass into the air, except through the conversion of the water into spray, or through the formation of dust by evaporation.

The chief practical inferences from these results are, that distances, even of hundreds of feet, between wells and cesspools are no protection against infection, and that a dry or an alternately wet and dry cellar may be more dangerous than a permanently wet one.

These results emphasise the importance of an intelligent survey of the condition of the soil in selecting a home, and of a legislation prohibiting the pollution of the soil.

In many towns and cities, the privy-vaults and leaching cesspools of every house drain really into the sheet of ground-water; the soil arrests the coarse material, the grease and slime; but the swarming bacteria diffuse with ease, as much as the soluble chlorides and nitrates, and follow the flow wholly unobstructed. Into this same soil are sunk or driven the wells; and the water that is drawn for use is polluted in proportion to the number and proximity of the vaults and cesspools, on the one hand, and the thinness and sluggishness of the water-sheet on the other. In the worst wells in daily use, the water is distinctly coloured with sewage; but the most deadly water may carry the germs of typhoid-fever or of dysentery, and be otherwise sparklingly clear, and so pure as to pass unchallenged through the most searching chemical analysis.

If the soil is polluted and very coarse gravel, this indraught, loaded with the spores of bacteria, will flow through the cellar to the warmer rooms. If the soil is polluted and fine, and the ground water-surface rises at any season to the level of the floor, or higher, it will evaporate as it oozes into the cellar, and leave an infected dust to be taken up into the circulation of the house-air. Similar results will follow from the leaching of the cesspool toward the cellar-wall, or from the filtration through the soil of sewage from a broken or leaky drain; which is very apt to exist in or just outside of the foundation-wall. The pollutions of soil and water already mentioned are of such a general character, that, with ordinary forethought, they can be guarded against; but there are others of a local character which are not revealed to a general survey. In the growth of many of our cities, the natural topography is disregarded. Lowlands and marshes which are traversed by sewage-fed brooks are covered with a network of high-graded streets, which convert the blocks into

The Permanent Exhibition, Registry, and Agency of Approved Architectural Appliances and Inventions.—Examples on view of perfect Sanitation, Ventilation of Drainage, Disconnection of House-drains from Sewer, Spray, and other Baths, Stoves, Wall-hangings and Decorations, Tile-work, Locks, Furniture, and various descriptions of House-fittings. Admission Free.—Stephen S. Phillips, Manager, 10, Baker-street, Portman-square, London, W. —[Advt.]

To Inventors.—Inventions protected by Royal Letters Patent at lowest rates. Provisional protection for nine months, £2. For all information concerning Patents address Messrs. Lulman & Co., Patent Agents, 8, Essex-street, Strand, London, W.C.—[Advt.]

sewage-basins, which come, in time, to underlie blocks of dwellings of all classes.

In other cases, low or marshy ground is made the dumping-ground of the city, and receives the sweepings of the street, the contents of the ash and garbage barrels—everything, in fact, that cannot pass through the sewers or be sold. The entire material is loaded with organic matter which is kept in a state of very slow decomposition by moisture.

Some of the costliest dwellings of our cities rise upon such soil. We may take every precaution to avoid in our homes the dangers that arise from a polluted soil, and may yet fall victims to the filthy condition of remote places, over which we have no control.

Among many others there are two exceptionally frequent sources of danger of this kind. One of these is the farmer's well, which is rarely safe, and, when not used to adulterate milk, is used to rinse milk pans and cans, and leaves upon their surfaces a source of contamination. The other frequent instance is the use, by druggists, of water from wells or from cisterns which are often anything but sewage-proof. Throughout the country, and often in the cities, the use of only distilled water in compounding medicines is far from universal; and I have had analyses made of lime-water bought at a druggist's, which was highly contaminated with organic matter. The druggist's well, moreover, is the source of most of the soda-water throughout the country, as well as in many cities where the water-rates are high. A person having a harmless disturbance of the bowels, arising from a cold, is just in the condition to succumb to the dysentery or typhoid fever lurking in the medicine of Vichy Water from the too-much-trusted druggist.—*Science.*

Danger of Acid Cheese.—Cheese, when excessively acid, is likely to produce alarming gastro-intestinal irritation. An outbreak of cheese-poisoning in Michigan recently was traced to this cause; and though no deaths ensued, the attacks were quite severe. The application of litmus would readily warn us of the presence of this danger.

The Olive Oil Industry at Leghorn.—As soon as the oil is received at the warehouse, it is placed temporarily in tanks and large earthenware jars to settle. New oil from the country is always thick, and in winter time generally congealed; after having been allowed to remain undisturbed for six or eight days, it is, if still congealed, slightly heated before being placed in the filters, in a large tin-lined pan, with a double bottom or jacket through which steam is made to circulate. Thus the oil does not come into contact with fire, but is gently warmed by steam until it is quite fluid. The oil filter is a rectangular wooden tank, lined inside with tin, and is divided into two compartments, an upper and a lower one. The oil is pumped into the upper compartment, and is allowed to filter through perfectly clean carded cotton—brought here from Malta, and preferred to any other on account of its purity—into the second or lower compartment, when it has again to pass through another layer of cotton, and finally comes out into a tank placed beneath a filter, from which, if perfectly bright, it is pumped into large marble-lined tanks, holding about fifty tons of oil each. If the oil is not perfectly bright, it is passed through the filters again and again until it becomes so. As a rule, however, oil, particularly if of the finest quality, becomes perfectly bright after one filtering. In the large tanks the oil is allowed to remain undisturbed until required for transportation, whether for Great Britain or the United States of America.

Jottings from the Journals.

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Phillip Sydney.*

The Dangers of the Seashore.—The neglect by the authorities of many watering-places of the health and safety of the guests upon whom their prosperity depends has been exemplified in a startling manner by the melancholy fatality in Devonshire. It is true that the charge of contributory negligence is often raised against the too confiding visitor, and the carelessness which he exhibits in the selection of a health-resort and in the engagement of temporary quarters, as was recently pointed out in the *Sanitary Record*, is indeed astonishing; but in the enjoyment of the natural attractions of the seaside he has at least a right to expect that his steps shall not be directed into danger by the authorities responsible for his entertainment. That this confidence is often misplaced is illustrated by the unusually long list of summer accidents. If the holiday-maker bathes there is too often no floating sentinel to watch his movements and to warn him of dangerous currents or tidal peculiarities; hidden from the shore by a row of closely-packed bathing-machines, he must get to land as best he can, or drown unaided and perhaps unseen. If his children and servants, permitted, by the relaxation of home-discipline, to wander where they will, choose to ramble under the cliffs, they must trust to a chance coastguardsman to tell them of the dangers of the tottering Scylla on the one hand and of the incoming flood on the other; or, if they prefer the narrow path above, there is no protecting rail to guard the crumbling edge, and no notice of the treacherous nature of the ground. The inquest on the Dawlish accident has had the result of at last awakening the local authorities to the danger of the spot set apart by them for bathing purposes, though it failed to settle a comparatively unimportant question as to whether a railway company who weekly deposited hundreds of excursionists in a natural trap, or the board who invited victims by facilitating their approach, were legally responsible for the absence of the caution-notice. Local boards are almost proverbially slow in their movements, and it is not, unfortunately, in watering-places only that they refuse to recognise a danger until it has been indicated by a coroner's jury. A London authority, recently, when appealed to by a neighbouring board to co-operate with them, "on account of the danger to pedestrians beneath," in staying a cataract of suicides from an elevated viaduct, considered the fact that there had been no falls from their side of the bridge a sufficient reason for refusing to protect it. The authorities of holiday and health resorts, however, owe an unquestionable and special duty to their visitors, whose annual incursion they solicit, and in whose enjoyment and satisfaction they hold a direct pecuniary interest. It is surely not going too far to insist that, while as few vexatious restrictions are placed upon the footsteps of the adventurous holiday-taker as are compatible with safety, he shall at least be warned of the presence of danger; and that his unsuspecting children and women-folk shall not be invited to stroll and sit in localities where no experienced quarryman would dare to venture.—*British Medical Journal.*

\+ + +

Hydrophobia in a New Country.—Among the countries which have enjoyed complete immunity from hydrophobia, the Straits Settlements have been numbered until within recent years. The disease was quite unknown to the natives until about three years ago, when cases were first

observed, and traced, it was believed, to dogs imported from England. Although this attribution has been strenuously denied by the captains of the ships, yet there can be no reasonable doubt but that diseased dogs have been imported. A considerable number of deaths have occurred; the *Straits Times*, in a recent issue, reported two cases—one, a native child, who died thirty days after being bitten; the other, a young man, who died about three months after being bitten by a dog "exhibiting all the symptoms of rabies." Some months earlier, an English officer died of hydrophobia on board the mail steamer bound from Hong Kong to Singapore; three months before his death, while at Singapore, he had been bitten, slightly, on the hand by his fox-terrier. It is stated that the Government has drawn up stringent regulations regulating the importation of dogs. The greatest vigilance will, however, be required to prevent their evasion by affectionate owners or unscrupulous dealers.

* * *

A Dog's Fondness for Alcohol. — We should never forget that intoxicating drinks cannot be ordered without some risk of a taste for them being acquired, and the remedy itself proving worse than the original disease. This risk was strikingly exemplified in the case of a favourite dog of two maiden ladies of my acquaintance. This animal was seized with an attack of acute pneumonia. The veterinary surgeon gave the dog brandy; the dog recovered, whether because of or in spite of the stimulant, I cannot tell. Ever since, if he hear anyone speak of brandy, he is up in a moment on his hind legs, begging for the seductive physic. Though I believe the cases of what may be called "medical drunkenness" are not nearly so numerous as is popularly asserted, I have known instances where the medical prescription of strong drinks has been the beginning of a career of excess. We ought in all cases to let alcoholic liquors be the last, and not the first, remedy, as they are ever fraught with possible danger. Especially we ought not to administer such "tricksy spirits" to reformed inebriates, or to persons who labour under the suspicion of a transmitted alcoholic taint. The whole system of all such is ever ready to respond to the lightest touch of the poison, and the smallest sip will often light up an uncontrollable conflagration. For these reasons, as well as for the scientific reason that we should administer our remedies in as well defined doses as possible, and in such a form as to be liable to little disturbance from the action of other agents, it is desirable to order alcohol at a certain specific gravity in some elegant mixture, or in a preparation into which alcoholic tinctures of an ascertained strength enter. By both these plans you can control the amount of alcohol you employ, and you can note the effects.—*Dr. Norman Kerr.*

* * *

Ague Altitudes.—While malaria and ague fevers belong chiefly to low-lying districts, they may, under favourable conditions, exist at great elevations. On the Tuskan Apennines the altitude in question is found 1,100 feet above the sea-level; on the Pyrenees and Mexican Cordilleras, 5,000 feet; on the Himalayas, 6,400 feet; on the island of Ceylon, 6,500 feet; and on the Andes, 11,000 feet. Under ordinary circumstances, however, a certain moderate altitude affords immunity from malaria. The elevation of entire security is not positively known, but it has been approximated as follows:—In Italy, 400 to 500 feet; in California, 1,000 feet; in the Appalachian of the United States, 3,000 feet; in the West Indies, 1,400 to 1,800 feet; in India, 2,000 feet. In any of these regions malaria may drift up ravines to an indefinite height.

At the Inventions Exhibition

By Our Own Reporter.

VII.

At the entrance to the Queen's Gate Annexe, Messrs. Kemp & Co., 18, City-road, Finsbury-square, E.C., show a new mode of fixing closet-pans, &c., which we should like to see in universal use. The invention dispenses with the use of india-rubber, putty, red or white lead, or any other of the ordinary joints which are so often a source of danger in the household. The pan, basin, sink, or whatever has to be fixed, is provided with an earthenware screw, on to which a brass union is screwed, and the joint is made. Short of snapping off the earthenware arm, which would only be done purposely, and even then with difficulty, leakage or breakage is, one might say, impossible, and with these would disappear the rotten floors, bad smells, and damp walls, of which defective joints are often the sole cause.

In the Queen's Gate Annexe itself, amongst a wilderness of steamboat models, carriages, steering-gear, and bicycles, are a few exhibits designed to promote the comfort of invalids, or the health of children, which deserve our attention. Mr. John Carter, 6A, New Cavendish-street, Portland-place, is, of course, to the fore (731) with a large show of the invalid furniture which for many years has been a specialty of this house. A novelty in most nurseries, though it will not long be a novelty in many, is his "Baby's Run," a simple apparatus for relieving the mother or nurse of the back-breaking toil inevitable with the first attempts of a child to walk. The "Run" is, first of all, an iron frame, and, secondly, a table running lightly on castors over this frame. This table opens to receive the little one's body, acts as an equal support all round, takes the weight off legs and ankles without any pressure, and is propelled by the slightest movement of the child. For several children the frame may be made in an endless form circus wise, but the ordinary frame for one child may be adapted as a nursery table, or as an occasional bedstead or couch.

Another and somewhat similar invention is the "Pedallicon" perambulator, fitted with an automatic pedal movement for exercising the legs and feet of an infant while the perambulator is in motion. The action is similar to walking, and the moderate use of this invention, or the "Run" in the case of healthy children, could have nothing but a beneficial effect upon the physique of the infant. The "Pedallicon," we should add, can be regulated or detached altogether from the perambulator, and the movement can also be applied to bath-chairs. Another, and perhaps even more important, addition to the comfort of our little ones is "baby's dry bed." It is strange that hitherto no attempt has been made to render an infant's cradle a more healthy bed than it is. Every child is laid in a crib with a piece of waterproof under him to preserve the bed, but, at the same time, to convert the sleeper into a human sponge to absorb all the wet emitted. Everybody has seen a child taken out of his bed in the morning, after a night's sleep, and can bear testimony to the truth of this remark. Mr. Carter's dry bed is a simple and admirable invention designed to remedy the evil. An ordinary mattress is used, on both sides of which a waterproof sheet is placed, and by an ingenious arrangement of perforated clasps in place of the usual tufts, the wet is enabled to flow through the mattress into a receptacle inserted in the palliasse. The same valuable apparatus may be applied to beds of all sizes, and used with or without an under palliasse, so that invalids may enjoy this new comfort of the nursery with the children. Before having this stand we would also direct attention to some iron bath-chairs in which strength, lightness, and ease of motion are brought to the pitch of perfection. The newly-invented iron bath-chair with adjustable back, seat, and leg-rest, combining a spinal carriage and bath-chair, is especially to be recommended.

Mr. Richard Cane, 65, Dean-street, Soho, shows (784) his "universal" cot, the only iron folding cot made, and an extremely healthy couch for infants. These cots are made by connecting two oblong frames with a strong fancy cord netting, and are supported by a vertical strut, one end of which is fixed to the upper frame, and the other to the cross-bar that connects the standards, thus rendering them perfectly firm when open. The bottom is made of very fine sailcloth strained like a drum, and only requires a thin mattress. They are made in various sizes, suitable for children of any age, thereby saving the expense and inconvenience of the cumbersome crib; size for infants, 2 ft. 9 in. long; and for children, from one to three years of age, 3 ft. 3 in. long; the No. 5 is also made "extra strong" for children from three to six years of age, 4 ft. long. A numerous collection of bath-chairs and other invalids' furniture is shown (766) by Messrs. Leveson & Sons, 90 and 92.

Oxford-street, whose "C" spring bath-chair, with its light, strong framework, and its steady motion, may be recommended to invalids as the *ne plus ultra* of comfortable perambulation.

At the other end of the annexe, amongst the naval architectural exhibits, Messrs. A. Gardner & Son, Jamaica-street, Glasgow, have a stand. Here is their spring mattress, which took a prize at the Sanitary Institutes Exhibition in 1883. In point of cleanliness, comfort, and durability they will bear favourable comparison with any other article of the kind. Over four springs, one at each corner, are laid polished wooden laths, whose smoothness of surfaces reduces the wear of the mattress above to a minimum. The cleanliness of these mattresses, as compared with most others, is, of course, beyond question; and another advantage they possess is that in removing they may be unfastened at the corners and rolled up into about two cubic feet space. The Gardner waterproofing for stone, brick, plaster, wood, leather, canvas, paper, &c., which, while absolutely excluding water, does not interfere with the free ventilation of air, is another exhibit at this stand. Specimens of V. W. H. vulcanised india-rubber are shown at several stands in the Exhibition, and in this group (1,006) is a very useful mattress of this material for camping purposes, for soldiers in barracks, for under-mattresses in sleeping-cars and hospitals, and for ambulance purposes. The corrugated rubber of which these mattresses are made renders them peculiarly suitable for these purposes. On the damp ground they may be used without a bedstead, and with perfect safety, whilst the hollow corrugations give them a valuable elasticity, both literally and vertically. The patent enamel paint manufactured by the Indestructible Paint Company, Limited, 27, Cannon-street, although shown here (960) chiefly in its application to ships, deserves, nevertheless, a word on its sanitary aspects. Prepared so as to dry with an enamel surface, glossy and firm, this paint ought to be largely used in kitchens, pantries, and other offices in the house, which it is of the greatest importance should be rendered capable of being washed—walls and ceilings as well as floors—as frequently as possible.

Messrs. Hayward Brothers & Eckstein, Union-street, Borough, the makers of semi-prism lights, have a stand in this group (1,014). The advantages to health resulting from the adoption of some such system as this for illuminating the basements of business premises are too well known to be further dilated upon. One has only to go into some of the City warehouses, where basement-lights are not used, to be convinced of the simply awful atmosphere in which the *employés* have to work. Messrs. Hayward's lights are remarkable for their power of gathering the light and reflecting it, by means of lenses placed at different angles, to the back portion of basement floors. The clean upper surface of the lenses, too, offers no facilities for the collection of dust and dirt, so that no obstruction is offered to the passing of the light. Mr. Wm. Halford, 2, Wynnyatt-street, E.C., exhibits in this group pavement lights adapted for similar purposes, but without the radiating power of those just alluded to. His illuminating steps are well adapted to the lighting of cellars, built, as many are, under flights of stairs or steps; and his self-fastening and illuminating coal-plate is worth the notice of householders. In Group III. Mr. Halford shows a patent cast-iron bath trapped above the floor-line. The bath and trap is cast in one piece, and, whilst saving plumber's work, effectually prevents leakage.

Sanitary Appliances, Etc.

ODONTOBAPH TOOTH PREPARATIONS.

These preparations, which have obtained a high popularity, have been carefully examined by us with the view of enabling us to report upon their efficiency, purity, and hygienic properties. As the result of a careful examination, we are able confidently to recommend them to our readers. The preparations in question consist of a tooth-powder, a tooth-paste, mouth-wash, and a special make of tooth-brush. The importance of a tooth-powder as a thorough cleanser of the teeth is a fact which has been duly ventilated by dentists, and which has been acted upon by the Odontobaph Company in the manufacture of their preparations. Mere fluids do not remove the deposits which form upon the teeth, and a paste, or powder is therefore necessary for this purpose, while the "mouth-wash" itself is an agreeable accessory to these toilet requisites. The primary and essential condition for a safe and hygienic tooth-powder or tooth-paste is its freedom from all deleterious or acid ingredients, and from gritty particles. This condition is perfectly exemplified in the preparations of the Odontobaph Company. Their articles are highly trustworthy in a hygienic sense. The powder and paste are equally agreeable to use, they are delicately perfumed, make an agreeable fluid when the brush is used, and are well calculated to preserve teeth and gums in a healthy state. The antiseptic properties of these articles, and of the mouth-wash itself, are also to be duly noted as an important hygienic feature.

The tooth-brushes of the Odontobaph Company have been specially constructed with the view of rendering their action of effective kind. By a special arrangement of the bristles the fullest power is given in cleansing the teeth. Dentists lay great stress upon the use of a properly constructed brush, and the brushes under notice certainly conform to the requirements of a safe and agreeable means of removing tooth impurities.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to "The Publisher," at the same address.

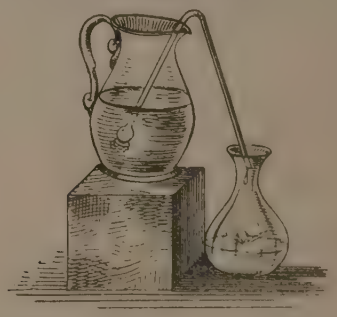
Contributors are requested to send stamps for the return of the MSS. in event of non-acceptance. Every care will be taken to ensure the safety of MSS., but the Editor and Publishers cannot hold themselves responsible for accidental loss.

Correspondents are requested to write on one side of the paper only The Editor disclaims responsibility for the opinions expressed by Correspondents.

LETTERS TO THE EDITOR.

ON THE PURIFICATION OF WATER BY MEANS OF ALUM AND POTASSIUM PERMANGANATE.

Sir,—If this simple method of purifying water by means of alum were better known to the public, it would doubtless become a more common household process than it is at present. The interesting report by Professors Austen and Wilber—see the *Chemical News*, May 22, 1885—will undoubtedly do a great deal towards popularising the method, though no more than I believe it deserves. The principle of using some material which may be used over and over again to "filter" out the impurities from an indefinite amount of water has, I think, received more than its due share of attention, when compared with that of adding some substance to each definite amount of water in order to precipitate, or at any rate render innocuous any impurities the water may contain. The trouble and expense of a precipitation process, when carried out on a large scale, constitute an objection to an otherwise effective process; but when



this process is applied to the small quantities which have to be dealt with in the household, this objection disappears. The trouble of adding a teaspoonful of a certain solution to a gallon of water is practically of no moment. The simple form of filter required, and the readiness with which it may be cleansed, are considerations which make the trouble of the preparatory treatment of the water appear of little consequence when compared with the evils of clogging and fouling of the ordinary domestic filter. I have for several years used alum for purifying the water I use for drinking purposes, and, rather remarkably, have been in the habit of adding exactly the quantity which I now find recommended in the report of Profs. Austen and Wilber, viz., two grains per gallon. I have lately in addition to the two grains of alum

also added one-eighth of a grain of potassium permanganate. The water in this case loses the pink colour during its passage through the sponge of which my filter consists, and is as bright and colourless as distilled water. I have failed to detect any alumina in the water thus purified.

The figure depicts a simple form of syphon-filter made from a bent thistle-headed tube the mouth of which is stuffed with a clean sponge. This is the kind of filter I now employ, and nothing simpler or more convenient could be imagined. The solution of alum and permanganate is prepared by dissolving three hundred and twenty grains of alum, and twenty grains of pure potassium permanganate in one pint of water. One fluid drachm of this solution is mixed with a gallon of the water, and after the lapse of ten or fifteen minutes the filtration is proceeded with. It might be advisable to increase the amount of permanganate for bad waters, and I should suggest that a mixture specially suited to the water of the district be supplied to the people.

One consideration which might arise from the extensive use by the public of a mixture containing permanganate may be of very great importance, namely, that a badly-polluted water would be sure to draw attention by the rapidity with which the pink colour would be destroyed.

Directions might be issued along with the supply of the material stating that unless the water retained a decided pink colour at the expiration of fifteen minutes after adding one or two measures of the solution, the water should be rejected for drinking purposes, unless it were pronounced safe after a thorough examination by some competent person.—I am, &c.,

Accrington. Joseph Barnes, Public Analyst.

HATS AND THEIR LININGS.

Sir,—I thoroughly agree with your correspondent "Homo," who objects to Miss Ballin's views regarding flannel linings for hats. I never suffered from forehead eruptions until I wore hats in which linings of this kind were placed. That my ailment could not be due to the presence of injurious dyes is clear from the fact that the flannel was of the pure white variety. I am not alone in this experience. One of my brothers suffered in the same way; a friend likewise complained; while in all three of us the symptoms disappeared on our going back to the soft leather. How any one can pretend to tell us seriously that flannel or serge, with its sweat-absorbing properties, and therefore its essentially dirty nature, is a preferable lining to leather, must puzzle the vast majority of hat-wearers. As to the remark I have heard made that leather linings are impervious, and therefore do not allow the escape of the skin-secretions, let me ask how these secretions can "escape" from a flannel lining? No secretions can escape through a hat. I say with "Aliquis," "ventilate the hat" by all means; this being the true solution of all the inconvenience. Where leather linings have been blamed for causing the hair to fall out, I think the true solution is to be found in the undue tightness of the hat, not in the lining at all. When our great hatters, with their vast experience of customers' likes and dislikes, have decided that smooth, cool, soft leather is the best materials for hat-linings, it does seem unnecessary (to use a mild term) for "reformers" to begin to lecture us regarding what we should or should not wear.—I am, Sir, yours, &c.,

Another Man.

HAT-LININGS.

Sir,—"Homo" has forgotten that ladies' riding-hats are constructed in the same way as men's hats, and that a lady is therefore entitled to speak on the subject. I cannot here restate the observations on hats, especially in relation to baldness, made in the *Queen* for Aug. 8; but I may remark that I entered into the question fully, before writing about it, with my hatter and with her husband, who supplies men's hats. They quite agree with me on the subject of linings, and have long used silk-serge head-linings, with coarse flannel at the back, which are both comfortable and healthy. Impervious head-linings destroy the hair by interfering with the functions of the skin of the parts they cover. The discomfort attributed by "Homo" to flannel-lined straw-hats I am inclined to think arises from the heavy and impervious character of the straw, not from the flannel. Flannel-caps are habitually worn for cricket and other athletic sports, and their value is attested by thousands. I have not heard of eruptions or skin irritation resulting from their use, although it is possible that such may have occurred in cases where the caps are dyed with aniline dyes, not, however, resulting from the flannel, but from the poisonous properties of the dyes. The question of head-gear has by no means been satisfactorily settled "by men and hatters," and there is very much room for improvement in this respect. Perhaps the first step should be to improve the "chimney-pot" hat off the face of the earth for good.—I am, Sir, yours truly,

Ada S. Ballin.

QUERIES AND ANSWERS.

[Queries sent on post-cards are not attended to.]

[Owing to pressure on our space, several replies have been left over until next week.]

GENERAL.

A Reader of Health.—(Post-cards are against our rules.) The information was obtained from an account of the researches given in the American journal, *Science*. We cannot now say when the account was originally published, but we imagine it was in the *Comptes Rendus*. If you could procure the numbers of *Science* for July and August, you would find the reference. Trübner & Co., of Ludgate-hill, would doubtless procure the journal for you.

Henry Johnson.—The bath you name is that made by Messrs. Groom & Co., of Liquorpond-street, London, E.C.

Cecil C.—An impossible operation. The ear would be destroyed.

J. G. T.—We believe the article is a patent. Write to the secretary of the company.

Clostera.—Your microscope is not powerful enough to show such bacilli; besides, there are processes of staining, &c., to be gone through, and you would require special instruction in this matter.

Effie.—Only an absurd superstition: nothing more.

J. Gordon.—Not known to us. Try a trade journal.

E. L. B., Nox, A. Tant, Foxley, and J. H.—declined with thanks.

L. Forster.—You mean salicylic acid, which is obtained from willow bark, and which is used to reduce the heat in fevers (possibly by its action on the germs of these diseases), and as a remedy in acute rheumatism.

SANITARY.

J. Thomas.—Adopt Hinckes Birds' plan. Fit a piece of wood, about three or four inches deep, on the sill, so that the lower sash of the window will rest securely thereupon. In this way, the top of the lower sash is made to rise above the bottom of the upper sash (which is not to be moved), and air comes in between the two sashes. This plan will ventilate a room effectually, in an ordinary way. The damper of the grate must be kept open summer and winter, as the chimney serves, when a fire is lit, as an exhaust flue.

J. Eagle.—The duty is one pertaining to the office of Inspector of Nuisances for your district. Apply to him.

F. E.—Infection is still possible. Continue all your precautions.

Agendor.—The effect, at the most, could only be of temporary nature. Try what another form of apparatus will do. The second you name is a good one.

Ellen B.—1. Better to destroy the carpet entirely. 2. No.

A. Frater.—The principle is called "Aspiration."

J. K.—Sanitas is your safest fluid. It is equally effective with that you name.

James S.—Yes; leave the blocks in constantly. If there is any draught, place a piece of wood or glass along the top of the bottom sill of the window, and slope it towards the room, so as to deflect the air-currents upwards. Take the temperature of the room with a thermometer, and judge whether it is too low. We do not find this plan too cold for winter, day or night.

MEDICAL.

N. R.—You do not give any particulars regarding your health, habits, or illness. All we can therefore say in reply to you is that you should have the throat sprayed with Sanitas Fluid, or have it painted with Glycerine of Tannin. Take internally, as well, fifteen drops of Fer Bravais, thrice daily, in water, after your food.

Preceptor.—We agree with you that probably too close confinement to the house is at the root of the hair troubles. Whatever lowers the general health, is certain to affect the hair in some patients. Try the effect of recommending more out-door exercise. Give also a teaspoonful of Fellows' Syrup of the Hypophosphites in a wineglass of water, thrice daily, after food. Wash the head once a week with tepid water and Iodoform Soap, and rub in a little of Rowland's Macassar Oil each morning to the roots. Use a soft brush only.

A Reader.—Thanks for your kind wishes. Use the lemon-juice, diluted with water. Squeeze the lemons thoroughly, and use the juice as a drink.

Tottie.—1. For chilblains try applying a lotion composed of equal parts (say half an ounce of each) of soap liniment and tincture of cantharides. To be labelled "Poison: for outward use only." Sponge this on the chilblains (and allow to dry) when painful. 2. Try taking a little Cod Liver Oil after your meals. 3. Yes; elder-

down is a healthy and light fabric for clothing. 4. Depends on the hair-growth which is natural to the individual. As a rule, keeping the hair short, for a time, does favour increase in thickness.

J. P. P.—A false idea entirely. There is no truth in it, and the matter is only a superstitious notion.

A. L. B.—Decidedly not; tricycling would be most unsafe under the circumstances you name. Your common sense alone should tell you so.

Xeno.—No "powder" will accomplish what you desire. Try a fluid solution.

A. Baxter.—1. Dust the parts with "Fuller's Earth" after washing with Samphire Soap and hot water twice or thrice daily. 2. Take a dose of Lamplough's Pyretic Saline each morning. 3. Avoid fatty foods and salt meats. 4. Scurvy is a blood disease. 5. Too much potash, probably.

J. Thomas.—1. No; not unwholesome: the fire acts as a ventilator of the room. There is no need for the door to be kept open. 2. By fire, and by the plan recommended to "J. Thomas," in the present number of Health. 3. No; such a closet is perfectly wholesome. We should have it cleaned twice weekly, however.

Westmoreland.—The pill you name is perfectly safe. We would suggest your trial of twenty drops of Cascara Cordial (Parke, Davis, & Co.'s) in water, an hour before food, once daily. But why not make diet your cure, instead of drugs, which should never be taken continuously at any time for any reason. Try stewed fruits, whole meal bread, Scott's Midlothian Oat-flour, or Grant's Scotch Oat-flour, avoiding tea and coffee.

E. E. T.—See and follow advice given to "Westmoreland" above regarding food and Cascara Cordial. In addition, see that you rest after your meals, this being an absolute necessity for health; and take Morson's Pepsine with your food. If not bettered, write again.

A. B. (Glasgow).—1. Press out the places (or blackheads) in the skin where the spots exist before they develop, and thereafter sponge the parts with eau de Cologne or toilet vinegar. Take hot baths occasionally, your skin-action being defective; and avoid fatty foods, salt meats, and pastry. Wash with Iodoform Soap (see advertisement in Health), which is a preventive of such eruptions. 2 and 3. Rest after your meals, and take Morson's Pepsine with your food. Your symptoms are due to indigestion. Probably you mean "A Manual of Health Science" (price 2s. 6d.), published by Longmans & Co. 5 and 6. We do not approve of the first-named author's views; the second we have never heard of. 7. Dr. Wilson's book, just named, should enable you to supervise your health in all ordinary respects.

G. H. S.—Messrs. Parke, Davis, & Co.'s Cascara Cordial can be obtained from Messrs. Burgoyne, Burbidges, & Co., 16, Coleman-street, London, E.C., in event of your druggist being so far behind the times as not to know of or to keep this excellent preparation. See and follow advice given to "Westmoreland" above regarding food. Rest after your meals, and take a teaspoonful of Fellows' Syrup of the Hypophosphites in a wineglass of water, thrice daily, after your food. You are evidently in want of a tonic, and this will set you up. We recommend you to consider well the propriety of making a trial of a glass of good claret with your dinner. This often cures such cases as yours, which depend on defective digestive power. Certainly, have your decayed teeth replaced by a good artificial set. See Dr. Jones' advertisement in Health.

A Daughter of Eve.—1. Try twenty drops of the Cascara Cordial, twice daily, in water. 2. Read "Our Ambulance Lectures" (now being published in Health), and in the section already published on "Bleeding" you will find full details regarding the treatment of internal hæmorrhage. Rest, ice, &c., are appropriate. Give also twenty drops Fer Bravais in water an hour before or just after meals, as a tonic.

[*Continued on page* 400.

"It is admitted by all that Oats are the most nutritious of all cereals, and that Scotland produces the best oats of any country in the world."

HIGHEST AWARDS AT LATE EXHIBITIONS.

Established 1813.

GRANT'S

SCOTCH

OAT FLOUR.

A NEW AND SPECIAL PREPARATION FROM FINEST SCOTCH OATS FOR INFANTS AND INVALIDS.

Sold in Tins by Family Grocers, Italian Warehousemen, &c.

GRANT'S SCOTCH OATMEALS & PEARL BARLEYS.

CRAIG MILLS, DUNDEE.

THE NEW FOOD.

WILSON'S BABY BISCUITS.

INFANTS' FOOD.

WILSON'S BABY BISCUITS.

INVALIDS' FOOD.

WILSON'S BABY BISCUITS.

IN SHILLING TINS.

Of Chemists, &c.

Sole Consignee, DAVID CHALLEN, London, N.

HEALTHY BREAD—See *Health*, May 15, 1885.

W. HILL & SON

ESTABLISHED 1784.

Solicit Trial of Bread made in their

HYGIENIC BAKERY,

34 & 35, ALEXANDER STREET, ST. STEPHEN'S SQUARE, WESTBOURNE PARK

(*Three Minutes' walk from Royal Oak Station*).

PRESENT PRICES.

Devonshire Bread, 6d. per Qrtrn., delivered 6½d.; Notched Bread 5½d. per Qrtrn., delivered 6d.

Other Depots:—60, Bishopsgate Street, E.C.; 3, Albert Mansions, Victoria Street, S.W.

SCOTT'S EMULSION of PURE COD LIVER OIL

AND HYPOPHOSPHITES OF LIME AND SODA

IS AS PALATABLE AS MILK.

Having all the virtues of the crude Cod-Liver Oil, in addition to the excellent tonic and strengthening properties of the Hypophosphites, it is

THE BEST REMEDY IN EXISTENCE FOR THE CURE OF

Consumption, Scrofulous affections, General Debility, Wasting Diseases, Coughs, Colds, and Bronchitis, and is unequalled for Children suffering from Marasmus and inability to digest ordinary food.

Any Chemist can supply it at 2s. 6d. and 4s. 6d.

IMPORTANT TO HOUSEHOLDS.

CHOLERA, TYPHOID, SMALLPOX,

and other contagious diseases, are mostly spread through infected linen in households and Laundries.
All Linen finished with

A1 LION BRAND RICE STARCH,

which alone is made on new sanitary and antiseptic principles, will effectually resist absorption of contagious germs. Insist on having it from your tradesman, and see that your Laundry uses it.
Offices:—47, LEADENHALL STREET, LONDON, E.C.
Used in London Hospitals and Institutions.

IMPORTANT NOTICE.

From the influence and scope of HEALTH, as a widely-read and popular journal of Sanitary and Domestic Science, it occupies a position of the highest value to Advertisers whose announcements appear in its columns.

Only a limited space is available for Advertising purposes, and orders should be sent direct to the PUBLISHERS, at the Office, 74-76, Great Queen-street, London, W.C.

TARIFF PER INSERTION.

Whole Page	£4 4 0	Quarter Page	£1 1 0
Half Page	2 2 0	Eighth of Page	0 10 6

Smaller Spaces *pro rata*.

ROSE'S LIME JUICE CORDIAL.

Wholesome and Refreshing.

ANTI-SCORBUTIC, BENEFICIAL IN RHEUMATISM.

BONIFACIUS WATER, Pure from the Spring, as supplied to PRINCE BISMARK.

1/6 and 1/- per bottle. | *Medical Press*:—"Extremely beneficial in Gout and Rheumatic Affections, and gives relief in cases of Gravel, Stone, Kidney Diseases, Abdominal and Congestive Affections, Obesity, Hæmorrhoids, &c."

HESSIAN BITTER WATER, THE QUEEN of Aperient Waters. Highly Effervescing, Pleasant, and Refreshing.

1s. 1½d. per bottle.

TO BE HAD OF ALL CHEMISTS, OR OF THE IMPORTERS,

BONIFACIUS COMPANY, 13, RAILWAY APPROACH, LONDON BRIDGE, LONDON, S.E.

T. Fellows.—No need to be alarmed. Read and follow advice given to "Taxus" in last week's Health.

B. Gordon.—A very low order of the quack tribe. Our advice to you is "Don't," unless you wish to be thoroughly swindled.

Christchurch.—1. Don't eat the skin of the grape. The seeds do no harm. The skin is indigestible and apt to be constipating in tendency. 2. The skin of the apple and pear is laxative in nature, but indigestible. 8. Eat fruits after breakfast and dinner. There is no fixed rule. The individual constitution and requirements are the guiding conditions here as elsewhere.

His Lordship J. M. G.—We fancy, in such a case, that all that is needed is to strengthen the system generally. The liability to cold, neuralgia, &c., are all so many indications of general lowering of the tone. Give a teaspoonful of Fellows' Syrup of the Hypophosphites in a wineglass of water after food, and note result of this advice. If not cured, write again.

Femur.—Give the Iodoform Soap a trial. If you cannot obtain it from your chemists, see advertisement in Health, and write direct to the makers. Wash the parts thrice daily with this soap and tepid water, and take internally fifteen drops Fer Bravais in water after your meals. Write again, if not bettered.

Tom.—See and follow advice regarding diet and Cascara Cordial (Parke, Davis, & Co.'s) given to "Dyspepsia" in No. 126 of Health. This treatment should cure the patient. Avoid taking pills and other aperients as at present. These only increase the mischief.

Africander.—Don't be so foolish as to indulge in such despairing thoughts. In the first place see that your indigestion is corrected, and for this purpose read and follow out carefully advice given to "Dyspepsia" in Health No. 126. Write us again after a trial of this advice for a week or two, say how you are, and we will then advise you further.

C. W. S.—The person you name is not a medical practitioner. We believe he is a herbalist. We advise you to give up such treatment. You are only nervous and depressed. Read carefully and follow out the treatment ordered to "Taxus" in the last number of Health. This will probably set you right. We may add that the disease you name is practically a quack invention. It is exceedingly rare, and certainly its existence could not have been made out by the person you consulted.

M. Wilson.—See advice to "Dyspepsia" in Health No. 126. Follow this out, and let your diet be as there described. The Cascara Cordial there noted will relieve the constipation. In addition, take soups (try Brand's or Mason's Beef Essence, &c.), white boiled fish, and try Morson's Pepsine with your meals. A little of Bingley's Ginger Ale (of Northampton) would be a safe, agreeable, and healthy drink for you. It is, of course, non-alcoholic.

Salisbury Plain.—Look to your teeth, and see that they are brushed night and morning. Use the Odontobaph Tooth Powder. Internally, try the Fer Bravais, as ordered to "Femur" above. We shall be glad to advise again, if required. We only send addresses of medical men on receipt of stamped, addressed envelope.

In Trouble.—Simply avoid all alcohol; take twenty drops Cascara Cordial (Parke, Davis, & Co.'s) in water an hour before food to ensure that no constipation exists; wash the parts with Iodoform Soap and tepid water morning and night; and use a weak injection of permanganate of potash thrice daily. Put a crystal or two of this substance into a tumbler of tepid water to colour the water of a light claret tint, and use as an injection. After you have recovered, take as a tonic, for a time, the Fellows' Syrup recommended to "G. H. S.," in the present number of Health. If not bettered write again.

Sutton.—1. Depends on the individual case. There is no harm in moderate exercise of the kind you name. 2. Yes; there are means of accomplishing that end. 3. Not under ordinary circumstances. 4. Nothing serious; only a consequence of constipation. 5. Yes; Samphire Soap is very excellent.

J. Nelson.—Your letter confirms us in our opinion regarding your inherent nervousness. Why not try a prolonged rest and holiday? This suggestion is worth your consideration. You should consult a physician accustomed to treat nervous diseases. We can send you address of such, if desired, on receipt of stamped, addressed envelope.

J. Haworth.—See and follow out advice given to "Taxus" in the last number of Health.

Spero Meliora.—No need to be depressed. Read and follow out the details of advice given to "Taxus" in the last number of Health.

Edwin Meldrum.—Look to your general health, keep the hair cut very short, wash the head once a week with Samphire Soap and tepid water, and use a soft brush only.

J. Kay.—In such a case, the best remedies are rest and change of air to a warm, southern seaside resort. Give the Fer Bravais as ordered to "Femur" in the present number of Health, as a good tonic remedy. Food to be nourishing. Should these remedies fail, consult a physician, who will prescribe appropriate remedies, after a personal examination of the case.

B. Texas.—No fear of any such result. Cycling will do you good. Try a Starley's central-gear Salvo. We have ridden one all the summer with great pleasure, ease, and benefit.

Tebay.—Take fifteen or twenty drops of Towle's Chlorodyne in water when the attacks threaten. Repeat the dose in four hours if not relieved.

B. Austin.—Try Fairchild's Pancreatic Extract; add, as directed, to cow's milk, and give this to the child.

The only Oat-Flour that was awarded Honours at the Sanitary Institute of Great Britain Exhibition, Glasgow, 1883, International Health Exhibition, London, 1884, and New Orleans Exhibition, June, 1885 (Gold Medal).

SCOTT'S MIDLOTHIAN OAT-FLOUR.

"Unequalled."

SOLE MAKERS.

A. & R. SCOTT, Kingston, Glasgow, and 14, Finsbury-square, London.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.

Trade Mark— "HEALTH BELT." —Trade Mark.

BY ROYAL LETTERS PATENT.

Harness' Electric Battery Belt.

The simplest, safest, most comfortable, most economical and most reliable adaption of Electricity for curative purposes ever invented—*vide* reports. Invaluable in all cases of Impaired Vitality, Nervous Debility, and the many distressing ailments consequent on defective circulation or sluggish organic action. Requires no wetting with vinegar or other extraneous acid, and does not injure the most delicate skin. Need only be worn half-an-hour per day. Send for testimonials, or consult Mr. Harness personally (free of charge) at the rooms of

THE MEDICAL BATTERY CO., 52, Oxford St. London, W.

(Corner of Rathbone-place).

PREVENTION AND CURE.

SMALL-POX.—Any person taken with this dread disease should be kept in a cool darkened room, to prevent disfigurement, and take nothing but Lamplough's Pyretic Saline. This simple treatment, after years of observation, has proved more effective than any other.

CHOLERA.—The late eminent Dr. Stevens recommends Lamplough's Effervescing Pyretic Saline every 15 minutes to any one attacked by this disease. The success of the Saline treatment was such that, out of 465 cases so treated in Coldbath-fields Prison, all but four recovered.

LAMPLOUGH'S PYRETIC SALINE **"SAVED MY LIFE,"** (NEVER BE WITHOUT IT.)

"For the Fever had obtained a strong hold on me. In a few days I was quite well."—*Extract from letter of C. Fitzgerald, Esq.*, when Correspondent of the *Manchester Guardian* in Albania.

THE GREAT REMEDY for Headache, Sea or Bilious Sickness, Constipation, Indigestion, Lassitude, Low Spirits, Heartburn, and Feverish Colds; prevents and quickly relieves or cures the worst form of Typhus, Scarlet, Jungle, and other Fevers, Prickly Heat, Measles, Eruptive or Skin Complaints, &c.

Sold by all Chemists in Bottles at 2s. 6d., 4s. 6d., 11s., and 21s. each.

H. LAMPLOUGH, 113, HOLBORN, LONDON, E.C.

22 PRIZE MEDALS AND CERTIFICATES.

JEYES'

'PERFECT PURIFIER,'

The Best and Cheapest DISINFECTANT,

DEODORISER, AND CLEANSER.

NON-POISONOUS! NON-CORROSIVE!

SOLD BY ALL CHEMISTS, 4c.

JEYES' SANITARY COMPOUNDS CO. Lim.

43, CANNON STREET, LONDON, E.C.

THE NEW DISINFECTANT.

WESLEY'S DISINFECTING FLUID

Should be used in every house.

It destroys bad smells, and has no unpleasant odour of its own. Is the best preparation for purifying the air of Sick Rooms, and being highly concentrated combines economy with efficacy.

Sold in Bottles by all Chemists and Oilmen.

DEPOT: 21, WILSON STREET, FINSBURY, LONDON.

Works by Dr. ANDREW WILSON,

F.R.S.E.

CHAPTERS ON EVOLUTION: A Popular History of the Darwinian and Allied Theories of Development. Second Edition. Crown 8vo., cloth extra, with 259 Illustrations, 7s. 6d.

LEAVES FROM A NATURALIST'S NOTE BOOK. Post 8vo., cloth limp, 2s. 6d.

LEISURE-TIME STUDIES, chiefly Biological. Second Edition. Crown 8vo., cloth extra, with Illustrations, 6s.

London: CHATTO & WINDUS, 214, Piccadilly, W.

Gold Medal, International Health Exhibition.

Wm. Woollams & Co.

ORIGINAL MANUFACTURERS,

ARTISTIC WALL-PAPERS.

Guaranteed free from Arsenic.

SHOWROOMS:

110, HIGH STREET, MANCHESTER SQ., LONDON, W.

Of all Decorators and Contractors.

SOLE ADDRESS. NOTE TRADE MARK.

THE BEST TONIC.

FER BRAVAIS.

COMPOSITION—Pure Iron, combined with Oxygen without Acid.

ADVANTAGES—Does not Constipate. Does not Stain the Teeth.

INVALUABLE IN ALL CASES OF WEAKNESS.

Lancet says:—"A beautiful and interesting preparation."

British Medical Journal says:—"An eminent London Physician writes to us; 'I have tried it extensively, and given it in cases in which no other form of iron could be taken. It is the best preparation of iron that I have met with.'"

May be obtained of all Chemists in portable Cases, with Drop Measure complete.

FER BRAVAIS.

To ensure Shipment, Goods must be alongside the Steamers half-an-hour before the advertised time of Sailing.

LEITH AND LONDON.

The LONDON and EDINBURGH SHIPPING COMPANY'S First-class Steam-ships, IONA, MALVINA, MARMION, MORNA, or other of the Company's Vessels, are intended to Sail (till further notice) from VICTORIA DOCK, LEITH, every WEDNESDAY, FRIDAY, and SATURDAY, and from HERMITAGE STEAM WHARF, WAPPING, E., every TUESDAY, WEDNESDAY, and SATURDAY.

☞ *Provisions, &c., may be had from the Steward on Moderate Terms.*

Apply, in LONDON, to London and Edinburgh Shipping Company, Hermitage Steam Wharf, Wapping; SEAWARD BROTHERS, 16, Laurence Pountney-lane; Aberdeen Steam Navigation Co., 102, Queen Victoria-street; R. Thomson or M'Dougall & Bonthron, 72, Mark-lane, E.C.; G. W. Wheatley & Co., 23, Regent-street; Lavington Brothers, 69, Old Bailey; EDINBURGH—Cowan & Co., 4, Princes-street; GLASGOW—Cowan & Co., 23, St. Vincent-place; GREENOCK—D. MacDougall, 1, Cross Shore-street; and here to THOMAS AITKEN.

8 and 9, Commercial-street, Leith.

Leith Office connected with National Telephonic Exchange. Commercial-street Telephone No. 435. Dock Office No. 422.

STEAMERS LIGHTED BY ELECTRICITY.

MORSON'S PEPSINE

Preparations of

Highly recommended by the Medical Profession for

INDIGESTION.

As Wine in Bottles at 3s., 5s., and 9s.; Lozenges, 2s. 6d. and 4s. 6d.; Globules, 2s., 3s. 6d., and 6s. 6d.; and Powder, as "Medicinal Pepsine," at 2s. 6d. and 4s.; and "Porci," a more concentrated preparation than the Medicinal, at 4s. 6d. each.

SOLD BY ALL CHEMISTS.

The popularity Pepsine has acquired as almost a specific for chronic dyspepsia, indigestion, &c., is due to the fact that it is the nearest possible production of the active principle of the gastric juice of the stomach. Unfortunately, like all other inventions of a like nature, Pepsine has been not slightly discredited by the spurious manufactures that have been issued from time to time; it is therefore necessary as a guarantee of its efficacy to see that each bottle bears the makers' name,

MORSON & SON,

Southampton-row, Russell-square, LONDON.

Papier Preservateur

Can now be had at Retail.

Of Drapers and Chemists in Ten Yard Rolls, 4s. 6d., or by Parcel Post of Makers.

Ladies who wish to be CERTAIN their clothing will not be injured by either MOTH or MILDEW should wrap it in this new chemical paper.

BUILDING PAPER.

Cheap, Light, Strong, Waterproof. In 10-yd. rolls, 40in. wide, 2d. per yard. Sample roll, Parcel Post, 2s. 6d. Use under slate and tile; temporary roofs; linings for dog kennels, outhouses, &c. *The best cure for damp walls.* For export.

Chemical Papers Co. Lim.

3, Lombard Court, London.

THE "CRITERION" CAFÉTIÈRE.

(ARNDT'S PATENT). Extracts, by simply filling the upper part with boiling water, all the palatable and wholesome properties of coffee without extracting the injurious substances, such as caffeine and tannic acids. No possible loss of aroma. Recommended by the highest medical authorities.

May be obtained at all the principal furnishing ironmongers in the kingdom.

Sizes, 2, 4, 6, 8, 12, large cups. Block Tin, 3s. 6d., 4s. 6d., 5s. 6d., 6s. 6d., 7s. 6d. Rolled Nickel, 8s., 12s., 15s., 18s., 21s.

WHOLESALE AGENTS,

THOMAS P. COOK & CO.,

34, Snow Hill, London.

SCHWEITZER'S COCOATINA.

Anti-Dyspeptic Cocoa, or Chocolate Powder.

GUARANTEED PURE SOLUBLE COCOA OF THE FINEST QUALITY.

The FACULTY pronounce it "the most nutritious, perfectly digestible Beverage for BREAKFAST, LUNCHEON, or SUPPER, and invaluable for Invalids and Young Children. *Being without sugar, spice, or other admixture, it suits all palates, keeps for years in all climates, and is four times the strength of Cocoas thickened yet weakened with arrowroot, starch, &c., and in reality cheaper than such mixtures.*

Made instantaneously with boiling water, a Teaspoonful to a Breakfast Cup, costing less than one halfpenny.

COCOATINA possesses remarkable sustaining properties, and is specially adapted for early Breakfasts.

In Air-tight Tins, at 1s. 6d., 3s., 5s. 6d., &c., by Chemists and Grocers.

CAUTION TO PARENTS.

THE delicate Skin of Infants and Children is particularly liable to injury from coarse and unrefined Toilet Soap, which is commonly adulterated with the most pernicious ingredients; hence, frequently, *the irritability, redness, and blotchy appearance of the Skin from which many Children suffer.* The Public have not the requisite knowledge of the manufacture of Soap to guide them to a proper selection, so a pretty box, a pretty colour, or an agreeable perfume too frequently outweighs the more important consideration, viz: **the composition of the Soap itself.** It should be remembered that **artificially coloured Soaps are frequently poisonous,** particularly the Red, Blue and Green varieties; and nearly all Toilet Soaps contain an excess of Soda. White Soaps, such as "Curd," usually contain much more *Soda* than others, owing to the use of Cocoa Nut Oil, which makes a bad, strongly alkaline soap very injurious to the skin, besides leaving a disagreeable odour on it. The serious injury to children resulting from these Soaps often remains unsuspected in spite of nature's warnings, until the unhealthy and irritable condition of the skin has developed into some *unsightly disease*, not infrequently baffling the skill of the most eminent Dermatologists.

PEARS' TRANSPARENT SOAP

IS RECOMMENDED AS ABSOLUTELY PURE;
FREE FROM EXCESS OF ALKALI (SODA),
AND FROM ARTIFICIAL COLOURING MATTER.
IT IS DELIGHTFULLY PERFUMED, REMARKABLY DURABLE,
MAY BE USED TO THE THINNESS OF A WAFER—SO THAT THERE IS NO WASTE,
AND HAS BEEN IN GOOD REPUTE NEARLY 100 YEARS,
AND OBTAINED

Seven International Prize Medals.

The Following Testimony is extracted, by permission of the publishers, Messrs. Chatto & Windus, from "*The Hygiene of the Skin*," by **Mr. J. L. MILTON, Senior Surgeon** *to* "*St. John's Hospital for the Skin*," *London.*

"FROM time to time I have tried many different Soaps, and I have now, after **Fifteen Years'** careful trial in "many hundreds of cases, both in hospital and private practice, no hesitation in giving my verdict to the effect "that *nothing has answered so well or proved so beneficial to the skin as* **"Pears' Transparent Soap.**

PEARS'
TRANSPARENT
SOAP
IS SOLD EVERYWHERE.

FOR THE TOILET AND NURSERY, TABLETS AND BALLS, 1s. Each.
Larger Sizes 1s. 6d. and 2s. 6d. each. The 2s. 6d. Tablets *are perfumed with* Otto of Roses.
A smaller Tablet (unscented) is sold at 6d.

ESTD. 1789.
A. & F. PEARS,
Soap Makers by appointment to H.R.H. the Prince of Wales.
91, Great Russell Street,
London, W.C.

THE durability is such that a Shilling Tablet is sufficient on an average for a child's bath for two months, hence it is actually *cheaper* in the end than a lower priced and inferior article. To prevent disappointment, the public are requested to ask for **"Pears' Transparent Soap,"** and to see that each packet contains their circular, headed **"Victoria Veritatis,"** and signed thus ☞

A & F Pears

Printed and Published for the Proprietors by CHARLES WYMAN, at the Printing Office of Wyman & Sons, 74-76, Great Queen-street, London, W.C.

1 GAL 130

PRIZE MEDAL, HEALTH EXHIBITION, 1884.

TIDMAN'S SEA SALT

For Producing a Sea Bath in your own Room.

The contents of a 7-lb. box suffice for 22 gallons of water. All who desire health and strength should daily use this unrivalled invigorator.

World-wide renown having induced many imitations, purchasers should see that every package bears the Proprietor's Trade Mark.

SOLD IN BAGS AND BOXES BY ALL CHEMISTS.

ROWLANDS' MACASSAR OIL

has been known for more than 80 years to be the best and safest preserver and beautifier of the hair; it contains no lead, mineral, or poisonous ingredients, and can now also be had in a golden colour, for fair and golden-haired children and persons. Sizes 3s. 6d., 7s., 10s. 6d., & 21s. Sent by Post for 3d. above these prices. Ask for ROWLANDS' MACASSAR OIL, of 20, Hatton-garden, London. Sold everywhere.

Gold Medal, International Health Exhibition

Wm. Woollams & Co.

ORIGINAL MANUFACTURERS,

ARTISTIC WALL-PAPERS.

Guaranteed free from Arsenic.

SHOWROOMS:

110, HIGH STREET, MANCHESTER SQ., LONDON, W.

Of all Decorators and Contractors.

SOLE ADDRESS. NOTE TRADE MARK.

THE BEST TONIC.

FER BRAVAIS.

COMPOSITION—Pure Iron, combined with Oxygen without Acid.

ADVANTAGES—Does not Constipate. Does not Stain the Teeth.

INVALUABLE IN ALL CASES OF WEAKNESS.

Lancet says:—"A beautiful and interesting preparation."

British Medical Journal says:—"An eminent London Physician writes to us: 'I have tried it extensively, and given it in cases in which no other form of iron could be taken. It is the best preparation of iron that I have met with.'"

May be obtained of all Chemists in portable Cases, with Drop Measure complete.

FER BRAVAIS.

SUMMER TOURS IN SCOTLAND.

GLASGOW AND THE HIGHLANDS.

(Royal Route viâ Crinan and Caledonian Canals.)

THE NEW ROYAL MAIL STEAMERS Grenadier, Claymore, Columba, Iona, Chevalier, Gondolier, Lochawe, Mountaineer, Pioneer, Glengarry, Clydesdale, Linnet, Clansman, Cavalier, Staffa, Glencoe, Inverary Castle, Islay, Lochiel, Fingal, and Lochness,

Sail during the Season for Kyles of Bute, Ardrishaig, Islay, Oban, Fort William, Inverness, Staffa, Iona, Glencoe, Loch Awe, Tobermory, Portree, Gairloch (Loch Maree), Ullapool, Loch Inver, and Stornoway, affording Tourists an opportunity of visiting the magnificent scenery of Glencoe, the Cuchullin Hills, Loch Coruisk, Loch Maree, and the famed Islands of Staffa and Iona. Official Guide Book, 3d. Illustrated, 6d., cloth gilt, 1s. Time Bill, with Map and Tourists' Fares, free by post from the Owner, DAVID MACBRAYNE, 119, Hope-street, Glasgow.

MORSON'S PEPSINE INDIGESTION.

Preparations of Highly recommended by the Medical Profession for

As Wine in Bottles at 3s., 5s., and 9s.; Lozenges, 2s. 6d. and 4s. 6d.; Globules, 2s., 3s. 6d., and 6s. 6d.; and Powder, as "Medicinal Pepsine," at 2s. 6d. and 4s.; and "Porci," a more concentrated preparation than the Medicinal, at 4s. 6d. each.

SOLD BY ALL CHEMISTS.

The popularity Pepsine has acquired as almost a specific for chronic dyspepsia, indigestion, &c., is due to the fact that it is the nearest possible production of the active principle of the gastric juice of the stomach. Unfortunately, like all other inventions of a like nature, Pepsine has been not slightly discredited by the spurious manufactures that have been issued from time to time; it is therefore necessary as a guarantee of its efficacy to see that each bottle bears the makers' name,

MORSON & SON,

Southampton-row, Russell-square, LONDON.

Papier Preservateur

Of Drapers and Chemists in Ten Yard Rolls, 4s. 6d., or by Parcel Post of Makers.

Can now be had at Retail.

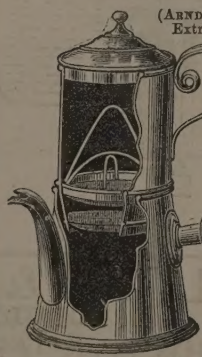
Ladies who wish to be CERTAIN their clothing will not be injured by either MOTH or MILDEW should wrap it in this new chemical paper.

BUILDING PAPER. *Cheap, Light, Strong, Waterproof.* In 10-yd. rolls, 40in. wide, 2d. per yard. Sample roll, Parcel Post, 2s. 6d. Use under slate and tile; temporary roofs; linings for dog kennels, outhouses, &c. *The best cure for damp walls.* For export.

Chemical Papers Co. Lim.

3, Lombard Court, London.

THE "CRITERION" CAFÉTIÈRE.



(ARNDT'S PATENT).

Extracts, by simply filling the upper part with boiling water, all the palatable and wholesome properties of coffee without extracting the injurious substances, such as caffeine and tannic acids. No possible loss of aroma. Recommended by the highest medical authorities.

May be obtained at all the principal furnishing ironmongers' in the kingdom.

Sizes, 2, 4, 6, 8, 12, large cups. Block Tin, 3s. 6d., 4s. 6d., 5s. 6d., 6s. 6d., 7s. 6d. Rolled Nickel, 8s., 12s., 15s., 18s., 21s.

WHOLESALE AGENTS,

THOMAS P. COOK & CO.,

34, Snow Hill, London.

SCHWEITZER'S COCOATINA.

Anti-Dyspeptic Cocoa, or Chocolate Powder.

GUARANTEED PURE SOLUBLE COCOA OF THE FINEST QUALITY.

The FACULTY pronounce it "the most nutritious, perfectly digestible Beverage for BREAKFAST, LUNCHEON, or SUPPER, and invaluable for Invalids and Young Children.

Being without sugar, spice, or other admixture, it suits all palates, keeps for years in all climates, and is four times the strength of Cocoas thickened yet weakened with arrowroot, starch, &c., and in reality cheaper than such mixtures.

Made instantaneously with boiling water, a Teaspoonful to a Breakfast Cup, costing less than one halfpenny.

COCOATINA possesses remarkable sustaining properties, and is specially adapted for early Breakfasts.

In Air-tight Tins, at 1s. 6d., 3s., 5s. 6d., &c., by Chemists and Grocers.

First Prize Medal (Highest Award) for Ventilators, Cork International Exhibition, September, 1883.
SILVER MEDAL, FIRST PRIZE, Brighton Health Congress, 1881.

BY ROYAL LETTERS PATENT.

PERFECT VENTILATION.

Cheapest and Most Efficient System of Warming, Cooling and Ventilating.

THE ÆOLUS WATERSPRAY, GENERAL VENTILATING, AND ELECTRICAL ENGINEERING COMPANY,
235, HIGH HOLBORN, LONDON, W.C.

Have received the following unsolicited Testimonial from the Vicar of St. John's, Waterloo, S.E.

[Copy of Letter.] St. John's Vicarage, 34, Waterloo-bridge-road, S.E.

Dear Sir,—Notwithstanding the unpleasantness of our last communications, I write to say that, if you wish to refer any one to our church to see your system in operation, I shall be most happy to explain it to them by appointment.

It gives complete and entire satisfaction.—Yours faithfully, (Signed)
April 9, 1885. ARTHUR W. JEPHSON, Vicar.

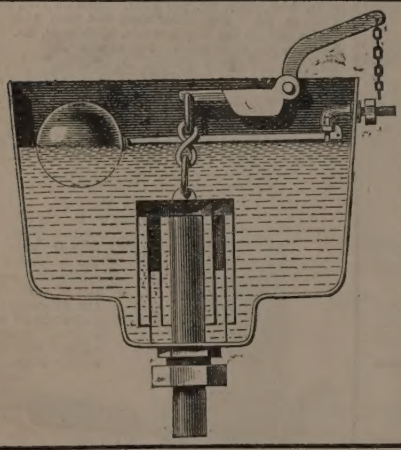
Mason Buildings, 4, Harrington-street, Liverpool, July 15, 1885.

To the Æolus Waterspray and General Ventilating Company, 235, High Holborn, London.

Dear Sirs,—I have much pleasure in testifying that the Invisible Roof Ventilators fixed by you in Cressington Church give me every satisfaction, whilst at the same time they do not detract from the appearance of the Building. The Church is now most comfortable in warm or stormy weather. Yours truly, (Signed) J. FRANCIS DOYLE.

CAUTION.—The public are Cautioned against dealing with unprincipled firms offering worthless imitations of the Waterspray Ventilator. Legal proceedings will be taken against all selling or using the same.

THE ÆOLUS WATERSPRAY CO. did not exhibit at Birkenhead, Eastbourne, Cornwall, Tynemouth, or any of the London Exhibitions or so-called Competitions, 1881, 1882, 1883, 1884, at which prizes were awarded for Ventilators.



Awarded the only Prize Medal for Flushing Cisterns at the Inventions Exhibition.

HUMPHERSON'S
Patent Syphon Cistern and Water-Waste Preventer

Possesses the following advantages:—Great flushing power, combined with simplicity of construction A full 1½-inch water-way in every part. No valves, except ball valve, to get out of order. No tight fitting parts, leathers, or rubber. A full flush insured whether lever is held or not. Adapted for al kinds of flush-out or flush-down closets. Full flushing power *maintained to the last.*

Prices—2 gallons, painted cast-iron, **20s.** Galvanised ditto, with strong copper cylinder, **30s.** Three gallons, painted, **25s.** Three gallons, galvanised, with strong copper cylinder, **35s.**

HUMPHERSON'S IMPROVED PIPE-JOINT

For connecting earthenware traps to lead soil pipes, or of lead or iron pipes. It is very easy of application, and made in various sizes to suit all traps now in use. **Price 5s. each.**

HUMPHERSON'S IMPROVED FLUSH-DOWN BASIN & TRAP, "THE BEAUFORT."

Specially constructed so that the flush is concentrated at the spot where the basin is usually corroded. Has great flushing power, trap being thoroughly cleansed at each discharge. Specially suitable for above Syphon Cistern.

Cane-and-White Basin and Trap, 7s. 6d. All White Earthenware Basin and Trap, 13s.

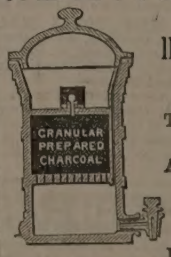
Particulars and Prices of the above and other Appliances, post-free on application.

HUMPHERSON & CO., Patentees and Manufacturers,
331, King's Road, Chelsea, London, S.W.

DOULTON & CO., LAMBETH, LONDON, S.E.

DOULTON'S
MANGANOUS CARBON FILTERS
(DR. BERNAYS'S PATENT).

ADVANTAGES:—
MANGANOUS CARBON possesses very high FILTERING POWER.
Can be readily taken to pieces for cleansing.
NO water can remain in reservoir to become stagnant.
An entire absence of corrodible material.



DOULTON'S
IMPROVED GRANULAR CHARCOAL FILTER.

ADVANTAGES:—
The Lower Bed is kept perfectly clean, thus adding to the durability of the Filter.
A DOUBLE ACTION secured to the power of the Filtering Medium.

Any description of Filter refitted at moderate charge.

Prize Medal, International Health Exhibition, 1884.

DOULTON & CO. also manufacture Boudoir or Table Filters, Pocket and Syphon Filters for Tourists' use, Manganous Carbon, Self-Acting Cistern Filters, Refrigerator Filters, Main Service Filters for Manufacturing purposes, Hotels, &c. May be had of all Dealers.

DOULTON & CO., LAMBETH, LONDON, S.E.
DEPOTS—100, SOHO ST., LIVERPOOL; GRANVILLE ST., BIRMINGHAM; AND 6, RUE DE PARADIS, PARIS.

Printed and Published for the Proprietors by Charles Wyman, at the Printing Office of Wyman & Sons, 74-76, Great Queen-street, London, W.C.